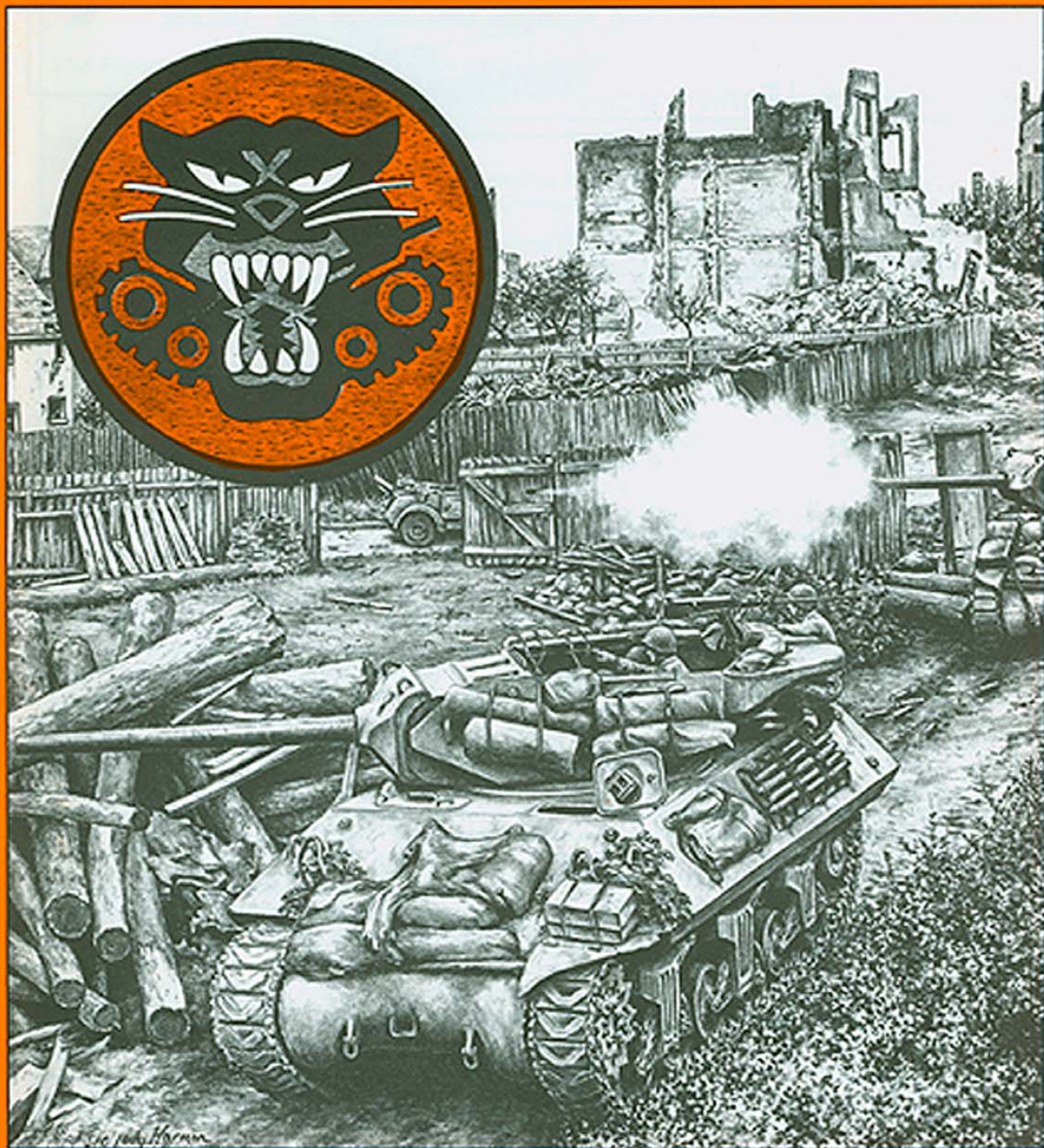
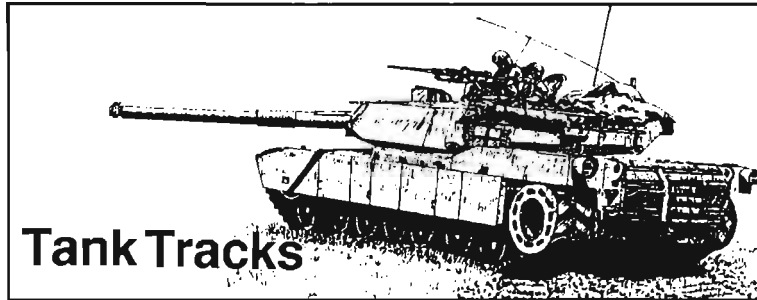


# ARMOR



**TANK DESTROYERS IN WWII:** *Flawed Doctrine...Unmatched Bravery* Page 26





For the second straight time in as many years, we begin a new calendar year with U.S. forces deployed abroad under conditions of imminent hostility. For those who like to find lessons learned, there is a gigantic one there -- mostly for those who thought you could fold up the Army like a tent and put it in storage until the next camping trip.

There has been a lot of talk about readiness. (See p. 45 for clarification on USR.) And some would have everyone believe that we could be in for real trouble because our battalion and company commanders have no combat experience, and our equipment is largely untested in battle. Let's look at the record, after which we can formulate the answer, "So what?"

In 1918, Rockenbach and Patton and Brett led the first Tank Corps into battle, essentially on an OJT footing. No combat-tested equipment here.

Did the first Sherman tanks we gave the British to use in North Africa have a combat track record? Nope. Was Creighton Abrams a hardened veteran of mobile, armored combat when he led the 37th Tank Battalion into battle in Europe? Nope. Nor were many of his contemporaries or subordinates. The whole concept of mobile, armored warfare was new to us in 1940, and the TOEs were changed several times during the war to reflect new equipment and lessons learned. New equipment training took place near or on the front lines.

Was the M48 or the M113 a proven battlefield workhorse in 1965? Did most battalion or company commanders in Vietnam have combat experience? The answer is, by now, obvious. We have nearly always entered a major conflict the same way -- with new, untested leaders and equipment. Somehow, American soldiers and their leaders learn quickly and get optimum use out of any piece of equipment from helmets to tanks.

Korea was the exception. While we had proven equipment and leaders, the tent had been folded and put in storage.

Compare the U.S. Army at the start of 1991 with the Army in 1917, 1940, or 1965 and you should see an Army that stands head and shoulders above those others in quality of equipment, training, and organization. It's an all-volunteer force that has enjoyed a good decade of plentiful resourcing to make it what it is today. The equipment is the best in world, and our tactical unit leaders have had the best training possible, short of actual combat.

And don't worry about our reservists and guardsmen. Never before have they been so highly trained and deployed so quickly.

Just keep the ammo and chow coming.

— PJC

By Order of the Secretary of the Army:  
CARL E. VUONO  
General, United States Army  
Chief of Staff

Official:  
THOMAS F. SIKORA  
Brigadier General, United States Army  
The Adjutant General

# ARMOR

*The Professional Development Bulletin of the Armor Branch PB-17-91-1*

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# LETTERS

## A Worthy Cause Is Slipping Away

Dear Sir:

What if a half-century of Armor Force history and development went unrecognized? What if someone decided to build a monument to our valorous Armored Forces in our nation's Capital, and nobody cared? How do these ideas sit with you? They are soon to be facts unless we take action now.

After a tremendous volume and a few years of liaison work by several individuals, the Congress passed H.R. 4378

into law on November 6, 1986, authorizing establishment of a memorial to honor the United States Armored Force. "The memorial shall commemorate the exceptional professionalism of the members of the American Armored Force and their efforts to maintain peace worldwide."

Such would seem to be a worthy cause deserving support of the thousands who served from the very beginning of the Armored Force in 1940 to today.

The monument, on the "Avenue of Heroes" in Washington, D.C., was to be dedicated on November 11, 1990. But it did not happen. The Armored Forces

Monument Committee still needs about half of the \$400,000 price tag — a cheap price by monument standards.

To say that donations from industry have been disappointing, is to severely understate the record. And now, with dwindling defense contracts, that situation is not likely to improve. So, it falls to us then, to our pride in having served, to our memories of comrades, to raise this monument to their deeds in four wars. And time is against us. The Congressional authorization expires in about a year. Do we really want to sit idly and watch this happen? Or do we want to jump up and say, "Count me in!"?

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Each of us must consider what is at stake here — the opportunity to raise an Armored Force monument in our Nation's capital. There won't be another opportunity. We must move now — next year is too late!

What can you do to help? Contact the Armored Force Monument Committee through Col. (Ret.) Duke Wolf, 210 East Fairfax St. Apt. 500, Falls Church, VA 22046-2908 (703-532-0776)

THOMAS C. FOLEY  
Maj. Gen., USA

## WWII Armor: Another View

Dear Sir:

WWII tanks were appreciably less than the success that is portrayed in the article by Konrad F. Schreier Jr. in your Sep-Oct 1990 issue.

From July 1942 to January 1945, I was the maintenance officer of G Company, 33rd Armor, 3rd Armored Division, a medium tank company. The TO called for three platoons of five tanks each, and one for the CO and one for me, a total of 17. My maintenance sergeant was T/Sgt Bowden Lafayette "Pappy" Henderson, whose service was continuous from WWI. Pappy taught me how to "road test" every vehicle in the company each month. My tank experience was first-line, from use them to fix them.

The M3 Medium should never have gotten to the design stage with its 75-mm gun, having only about a 25-degree traverse. The Field Artillery ROTC at Purdue University taught that the 25-degree axle traverse on the Model 1895 French 75-mm eccentric screw, breech block box-trail, towed pieces was so serious a fault that the design was no longer used. Surely, Ordnance was aware of this.

M3 Medium drivers sat front center, with their legs astraddle the transmission. Oil temperatures in the transmission during Mohave Desert training made the drivers appreciate frequent relief.

M3 Medium engines were nine-cylinder, air-cooled, dual-ignition, and used high-octane "airplane gas." Vapor lock was a very common problem. The air cleaners were too small, and excessive dirt was ingested during dusty conditions.

Front drive on the M3 Medium resulted in a "pulled track," which required high

driver skill. During turns, increasing power application was needed to avoid risk of throwing a track. This was also true of the M4 Medium.

Then came the M4 Medium. The only real improvements Ordnance made were the 360-degree gun-mounted turret and seating the driver next to the transmission, rather than astraddle it. But hey, that was appreciated by all of us.

Let me tell you a few things I remember about the M4 Medium. Our nine-cylinder, air-cooled, dual-ignition, radial engines had to be operated above 1200 RPM or spark plug fouling would cause missing. Have you ever been in combat with a nine-cylinder engine hitting on five? It causes a degree of anxiety, I assure you. The engine had a governor set at 3200 RPM and you can use your imagination about how we felt about those. To change the 18 spark plugs required an agile mechanic to lower the major part of his body head first into the engine compartment to reach the bottom spark plugs. Yes, we did it more than once, chancing small arms fire from the enemy infantry. At about 325 HP, that engine, with the limited RPM range, was a real dog for a 33-ton M4.

Remember that in the hedgerow "Bocage" country of Normandy, we measured progress in terms of yards per day many days. This meant a lot of engine idling and very slow speeds, all of which caused spark plug fouling. I wonder how the new M1 MBT will perform in close infantry support at idle 90% of the time and first gear the rest of the time. What, no first gear?

Exhaust elbows were tightened against a gasket between the cylinder heads and the elbow. Exhaust leaking often caused the gasket to blow, and the elbow flanges to warp. Upon tightening the nut on the stud in the cylinder head, it was common for the stud to fail in tension and require replacement, which was a nasty job on the lower cylinders. There were many first echelon maintenance problems on the radial engines that made them unsuited for tanks.

Engine starting procedures required turning the engine over five revolutions by revolving the hand crank 55 revolutions to avoid "hydrostatic lock." Batteries were located under the turret and replacement of the steel battery box cover could be exciting if you dropped the cover against the battery terminals.

Gyrostabilizers on the 75s were almost impossible to keep in operation. The gun

sights were mounted in the periscope and gave a wide field of vision but lacked magnification and accuracy.

Every man in Ordnance, including the CG, should have been required to change a broken volute spring in the bogie suspension system. I am sure they would have devised a different suspension system very quickly. Running on a broken spring could mean a thrown track because of loss of track tension.

General Omar Bradley, in his book "A Soldier's Story" tells about our tanks on pages 322 and 323. He relates General Eisenhower's comments about the failure of the 76mm replacement for the 75s and about Ordnance's touting of the 76. Bradley goes on to state: "For the remainder of the war our tank superiority evolved primarily from a superiority in number rather than the quality of the tanks sent into battle."

Compared to the German Mark V Panther, our M4 Medium was lacking in every category.

W.H.F. SAIA, P.E.  
Midland, Mich.

## Record Needs to be Set Straight

Dear Sir:

Publication of the Konrad F. Schreier, Jr., article "American Tanks Meet the Test" in the September-October 1990 issue merits comment on a few significant items.

First of all, concerning the M3 General Lee and General Grant Medium Tanks. The British did not like the 37-mm turret on the M3 when it was initially designed, as they considered it too crowded and lacking in space for the mounting of a radio. American policy was to mount the radio in the tank hull, while the British preferred a turret-mounted set. As a consequence, the British came up with a turret with a bustle for the radio and more room for the crewmen. They named the M3 Medium with this turret the General Grant. This particular version was not used by U.S. forces. The British named the M3 used by the U.S. forces with the original U.S. turret the General Lee, and the British did use the General Lee as well as the General Grant. The M3s used by the U.S. forces were never "Grants," as used throughout the article.

On page 29, a short paragraph mentions track connectors and grousers as if they were the same items. This is not the case. The problem discussed was the narrow Sherman track and the flotation it provided as the weight of the tank was increased. An interim solution was to replace the standard track end connectors with extended end connectors (sometimes called duckbills) along the full length of the track to increase the width of the track and as a result, the flotation. The grousers on the tank track attacked another problem — that of traction. The smooth rubber block tracks did not provide sufficient traction in certain terrain conditions, so relatively sharp edged steel grousers were fitted transversely across the track at four-track-link intervals. They were fastened by pins and a screw to the standard end connectors, but did not extend the width of the track. Extending below the track as it traveled over the ground, they provided a greatly increased traction, or grip.

Two different type horizontal volute spring suspensions (HVSS) were tested in 1943. The second was tested on four pilot models of the Sherman — M4E8, M4A1E8, M4A2E8, and M4A3E8. Ten additional were then installed on ten more pilots, all M4A3E8s. The suspension used three dual-wheel bogies per track with center-guided, 23-inch-wide tracks. In March 1944, the HVSS was released to production for all tanks of the M4 series. Only the pilot tanks carried the E8 designation — the production tanks carried their standard series number such as M4, M4A1, M4A3, etc. The 76-mm gun first appeared in production tanks in the M4A1 in January 1944, before the HVSS was released for production. Thus, the statement the M4A3E8 Sherman was introduced in early 1943 with the 76-mm cannot be factual. The M4A3 (76-mm) w/HVSS appeared in March 1944 — and it was a standard series model, not an M4A3E8 experimental vehicle.

Mr. Schreier stated that the M36B1 90-mm Gun Motor Carriage mounted a special open-top 90-mm gun turret on a slightly modified M4A3E8 Sherman, and proved the Sherman could have been armed with a 90-mm gun. In fact, the M36B1 was the turret of the M36 on a standard M4A3 tank hull. It was built because sufficient numbers of the M36 90-mm Gun Motor Carriage were not available to meet the demand, and was rated Substitute Standard. Because the M36 was a new turret on the M10A1 Gun Motor Carriage, which was a Sherman hull with

thinner armor, the M36B1 proved nothing the M36 had not already proved.

Mr. Schreier wrote that the M4A3E2 Assault Tank version of the Sherman never accumulated a combat record. Only 254 were manufactured in June-July 1944, but they were highly successful in combat. If available, they normally led in the attack over suitable ground or in the cities due to their heavier armor. Some were converted in Europe to take the 76-mm gun in place of the 75-mm originally employed.

I hope you do not consider the above mere nitpicking, but the record needs to be set straight for armor people to read. Some of us were not there in World War II with these vehicles as some of us were. Comments in addition to these could be made about this article as well as the previous one, mainly of a less significant nature.

LEO D. JOHNS  
COL, USA, Retired  
Midlothian, Va.

#### Off-the-Shelf Solutions

Dear Sir:

Your September-October 1990 issue had several very interesting articles that go to the heart of the current Persian Gulf crisis.

"A New Day for Armor or the Last Glimmer of Sunset?" pointed out the need to have mobile armored forces available to back up the quick reaction forces of the Army. Light armor is desperately needed, preferably wheeled light armor that is amphibious, reducing dependence on bridging equipment. LAV-type vehicles with the 75-mm ARES gun, standard LAVs, and Panhard M11 VBLs would make a potent force for both firepower and scouting missions for a light unit. These are off-the-shelf items that could be in place within months, if the decision could be made to utilize them.

"Making a Case for Brigade Reconnaissance Elements" also points out the need for such vehicles, especially the M11s. The M11 is a small, three-man, amphibious, lightly-armored, NBC-protected vehicle that would be ideal for scouts in any organization, light or heavy. It can be equipped to defend itself and is able to carry sensor systems (tank thermal sights, starlight scopes, large binoculars, sound amplifiers, laser rangefinders, etc.) that extend the area of coverage for a brigade commander.

"Armor Support in Low- to Mid-Intensity Conflict" emphasizes, once again, the Army's inability to come up with a decent Armored Gun System. The LAV with a 75-mm ARES cannon would fit the bill nicely, but it doesn't seem to appeal to the powers that be.

"Give Me a Heavy-Light" points out the same theme as noted above: the need for light recon elements in any scenario. The light wheels could do the mission here also.

Had Saddam Hussein moved into Saudi Arabia before the 82d got in place, or through the 82d, the political leadership would have been faced with some terrible choices, and the Army would have been left with no good answers as to why it has no means to protect light forces with organic light armor. It would have been embarrassing for the Army leadership, but fatal to the members of the 82d who were killed by the Iraqi combat arm of decision. We were very lucky in August 1990; I doubt we'll be lucky if Kim Il Sung decides to reunite Korea, if the U.S. is decisively engaged in the Persian Gulf, and the North Koreans follow Larry Bond's novel Red Phoenix and launch an attack three weeks after the Gulf goes hot.

LARRY A. ALTERSITZ  
MAJ(P), FA, NJARNG  
New Jersey Military Academy  
Sea Girt, N.J.

#### "A Rock to Lean On..."

Dear Sir:

Late in the afternoon of 28 September 1990 at MacDill AFB, Florida, a soft rain fell on a retirement ceremony. Perhaps it was the Lord weeping; most assuredly St. George wept because one of our greatest cavalymen took off his spurs and dismounted his steed for the last time.

Major General Joe Lutz, a distinguished cavalryman and the developer of all the good that is now in our Special Operating Forces, retired. He was the ideal soldier to lead our Special Operating Forces through some trying periods, and he led them well. Strong men wept at his retirement. Grizzled NCOs who would look comfortable wrestling with crocodiles or bears had eyes brimming with tears. Joe Lutz was a rock to lean on for generations of soldiers, and these warriors knew it. He was a warrior's warrior.

Joe Lutz was a natural, probably the finest leader of men that I have ever seen.

*Continued on Page 50*

# COMMANDERS' HATCH

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*MG Thomas C. Foley  
Commanding General  
U.S. Army Armor Center*



## Desert Shield Deployment Rivals Patton's Rush to the Bulge

Who would have thought a year ago that well over half of our active component Armor Force would now be in Southwest Asia? This is astounding, and what makes it so remarkable is not just the magnitude of the force involved, but how quickly we were able to disengage, turn, and move our powerful armored formations. I predict historians will be writing about his great feat of arms for years to come, comparing it with a very famous operation conducted 46 years ago this past December.

Recall, in December of 1944, it was General George Patton who defied conventional wisdom by turning his army 90 degrees and then swiftly racing to relieve the encircled 101st Airborne Division in

Bastogne. This decisive move, spearheaded by the 4th Armored Division's battalions such as Creighton Abrams' 37th Tank Battalion and Albin Irzyk's 8th Tank Battalion, broke the back of the German attack.

This Third Army operation has rightly long since become a much studied classic in the art and science of command and staff work in mobile armored warfare. But the turn and move by our forces from CONUS, and especially those from U.S. Army Europe, is equally impressive. To suddenly disengage a modern armored corps, with all of its support, from the myriad and very diverse activities associated with a forward deployed army, and move it quickly to port and into a distant theater, is remarkable to say

the least. I don't know another army that could accomplish this.

It says a lot about the soundness of our combined arms doctrine, our outstanding equipment and organizations, our quality soldiers, our tough and realistic training, and our very competent leadership. We are intensely proud of what we are witnessing. We know that, as long as there is an Army, that Army will continue to look to its Armor branch for bold, courageous leaders with the superior mobility and agility of mind who thrive on rapid response to unexpected challenge.

Just as in the victory in the Battle of the Bulge and just as in DESERT SHIELD, Armor will always answer the call.

**Forge the Thunderbolt!**

# Armor-Cavalry Units Deployed Operation Desert Shield



U.S. ARMY PHOTO BY LINDA L. SLUDER

## 1st Armored Division

1-1 Cav

1st Brigade  
1-37 Armor

2d Brigade  
1-35 Armor  
2-70 Armor  
4-70 Armor

3d Brigade  
3-35 Armor

## 2d Armored Division

1st Brigade  
1-67 Armor  
3-67 Armor

## 3d Armored Division

4-7 Cavalry

1st Brigade  
4-32 Armor

2d Brigade  
3-8 Cavalry  
4-8 Cavalry

3d Brigade  
2-67 Armor  
4-67 Armor

## 2d Armored Division (FWD)

3d Brigade  
2-66 Armor  
3-66 Armor

## 1st Cavalry Division

1-7 Cavalry

1st Brigade  
3-32 Armor  
2-8 Cavalry

2d Brigade  
1-32 Armor  
1-5 Cavalry  
1-8 Cavalry

## 1st Infantry Division (M)

1-4 Cavalry

1st Brigade  
1-34 Armor  
2-34 Armor

2d Brigade  
3-37 Armor  
4-37 Armor

## 3d Infantry Division (M)

3d Brigade  
4-66 Armor

## 8th Infantry Division

1st Brigade  
4-34 Armor

## 24th Infantry Division

2-4 Cavalry

1st Brigade  
3-69 Armor

2d Brigade  
1-64 Armor  
4-64 Armor

## 197th Infantry Brigade (M)(Sep)

2-69 Armor  
D/4 Cavalry

## 82d Airborne Division

1-73 Armor  
1-17 Cavalry

## 2d Armored Cavalry Regiment

1st Squadron  
2d Squadron  
3d Squadron  
4th Squadron

## 3d Armored Cavalry Regiment

1st Squadron  
2d Squadron  
3d Squadron  
4th Squadron



## The Force *by CSM Jake Fryer, Command Sergeant Major, U.S. Army Armor Center*

Just this morning, I was looking at my calendar, and realized I was late in writing my article for the Driver's Seat. A lot of ideas flashed through my mind on what to write about. There are so many great things happening in the Armor Force today. But the most important issue is the future of the armor enlisted force. I reached for my phone and issued an OPORD to Sergeant Major Greg Merder, who works in the Directorate of Total Armor Force Readiness, Personnel Proponency Division. Together we have put this article together.

If you have been keeping up with the Army force structure changes/cuts through the news media, the situation looks foggy, and the future seems unclear.

We are going through a lot of changes: Voluntary Release Program, DESERT SHIELD, and Stop-Loss. How will this all impact on our soldiers? Let's look at each one of these actions.

● **Voluntary Release** - In May of last year, the Army established a voluntary 90-day early separation program. It was to help the Army make personnel and force structure reductions as required by the budget and Congress.

● **DESERT SHIELD** - On 2 August 1990, Iraq invaded Kuwait and the United States sent troops and equipment to support the Saudi government. Armor units, along with the other combat arms, are the core of our United States forces in

### Force Reduction Actions

- Reduce accessions
- Restrict retention
- Expand Voluntary Release
- Expand involuntary programs
  
- Allow soldiers in inactivating units to separate

### Desert Shield Impact

- Continue Accessions
  
- Voluntary Release suspended
- Slow down involuntary programs
- Can do indefinitely
- Accept overstrength in the CMF
- Morale
- National Commitment

Saudi Arabia. Our deployment, along with projections of casualties if hostilities do break out, caused us to take actions to ensure the robustness of CMF 19.

● **Stop-Loss** - In late August 1990, the Army ordered Stop-Loss action into effect. Stop loss is mandated by law when the president orders mobilization of Reserve Forces. Stop-Loss suspended all voluntary release programs, including early separation programs.

● **Force Reductions** - While all of these actions are taking place, the Army will still draw down in size, as required by the budget. The Armor Force will go from 26K to around 15K by 1996.

● **Conflicts** - On one hand, we have force reductions; on the other, we have to maintain robustness in the CMF to support DESERT SHIELD.

What does this all mean to the armor soldier? What it means is that for the next year or two, the professional development situation will be very cloudy. In particular,

promotions will probably slow significantly. This is because promotion targets are based on authorizations at least a full fiscal year out, while our inventory remains quite high. But when the dust settles, the overall promotion opportunity and opportunity to serve in our key leadership positions will again be very healthy. The responsibility is on us as armor leaders to, first, identify and separate through involuntary means those soldiers who are poor performers; and second, make maximum effort to identify and continue to encourage our best soldiers to stay in armor. They need to understand that the situation will stabilize soon and they still will have super opportunities to pursue duty as platoon sergeant, first sergeant, and sergeant major. Good soldiers will hang on through the tough times if they are strong, concerned, and caring leaders, and are offered tough, challenging, and rewarding duties. Armor has both: leaders to mentor and inspire our young soldiers, and the challenges that keep motivated soldiers thirsting for more.

"Forge the Thunderbolt!"

# Defeating the Iraqis

*Saddam's Troops Are Not Ready  
For a War of Maneuver*

by Colonel Wallace Franz (USA, Ret.)



A military victory gives the national command authority the opportunity to successfully terminate a conflict. Victory in battle, in a campaign or even in a war, cannot in and of itself achieve the objectives set by the country's leadership. The Vietnam war is an example of that fact. The many U.S. victories did not lead to achieving the goals set by several U.S. governments. Statesmanship must take the opportunities presented by victory on the battlefield to achieve its objectives and end a war. The nature of the victory is also critical. A victory with high casualties, a long, drawn-out campaign, a particularly destructive campaign, all can make it difficult to achieve the required political results in spite of apparent military success. It is the job of a country's armed forces to provide its government with the kind of military success that will aid in achieving the political objectives of the government.

If it turns out that the objectives set by the U.S. government in the Persian Gulf can only be achieved through military action, then the operation must be swift and not produce a large number of casualties. Certainly the time will come when the force ratio in the region will favor the anti-Saddam alliance.

Can the United States and its allies conduct such a campaign against the Iraqi Army in and about Kuwait?

Much has been made in the popular press of the military capability of Saddam Hussein's army, an army of one million men,

and thousands of tanks and artillery pieces. This army has the battle experience of the eight-year war with Iran and such statements as "Iraq's battle-seasoned armored units" appear in the news. There seems to be little doubt on the part of most analysts that the United States and its allies could defeat Saddam's army. The question seems to be, how long would it take, and what casualties would the United States suffer? Some have put the casualty figure at 30,000 or more. While it is a cardinal sin in military planning to underestimate your enemy, it is important not to overestimate your enemy and thus eliminate some viable options. There is a tendency in some circles to overestimate the capabilities of the Iraqi military, and, therefore, its ability to cause casualties to U.S. forces. A close look at such important factors such as combat experience, equipment, and leadership will put the Iraqi military capabilities in proper perspective.

The Iraqi Army does not have a record of military success. It attacked an unprepared Iranian Army in 1980 and lost most of its early gains by 1982. It spent the next six years defending itself against human wave assaults conducted by an unprofessional Revolutionary Iranian Army. In spite of the fact that it usually had air superiority and fire superiority, it suffered a number of defeats, such as Mehran, Khorramshahr, and the Majoon Islands. It has lost about 80,000 troops as prisoners. Iraqi forces received low marks from Israeli, Syrian and Jordanian officers for their perfor-

mance in the 1973 Arab-Israeli war. They do not do well at mobile mechanized warfare because this calls for an ability to think rapidly, to improvise in the heat of battle, and the willingness of junior officers to take responsibility or make decisions on the spot. Officers are reluctant to take action without orders. The elimination of Iraqi officers who think independently, or who disagree with Saddam, continued during the war with Iran. The officers corps has suffered a number of purges over the years as Saddam has cemented his control of the army. On the other hand, in the defense, fighting from prepared positions, Iraqi troops have done well. Their army has been molded by its eight years of fighting a war of position, tied to fortifications and communication nets, against a low-tech enemy.

In spite of its large number of tanks, many of which are obsolete, the Iraqi Army is not experienced in handling mechanized forces in mobile operations requiring extensive maneuver. If it comes to a fight in the desert, they will face a situation they have not had to face since their costly experience against the Israelis in 1973. The United States will have air superiority, fire superiority, and high-tech intelligence systems, all supporting an Army trained and equipped for mobile warfare. This is not to say the Iraqi Army is a paper tiger. It has its strengths and weaknesses. The point is to take advantage of these weaknesses and use U.S. strengths against them. For instance, the United States must not attempt to



British troops suffered few casualties in desert war of maneuver against the Italians.

fight a war of position requiring costly assaults on prepared defenses. Israeli Major General Chaim Herzog, in discussing the lessons learned from the 1973 Arab-Israeli War, points out the need to avoid tactical attacks on strongly held Arab defensive positions. He advocates an indirect operational approach that allows an army trained in mobile warfare to use its strength. In other words, make the enemy fight your kind of war. Keep the initiative, and make the enemy react to your maneuvers.

History is full of examples of successful campaigns that were completed quickly and with little cost. One of these examples can give an idea of what might be accomplished in a conflict involving opposing forces having many of the characteristics discussed above. Early in WWII, the British and Italian armies were involved in a winter desert campaign in Libya and Egypt. On 13 September 1940, the Italian Tenth Army began its invasion of Egypt. A force of about 80,000 men advanced 60 miles to Sidi Barrani. The Italians, under General Graziani, occupied Sidi Barrani three days after crossing the Egyptian border. The Italians then began to construct a series of defensive camps and to build up their administrative resources and communications. No effort was made to advance any farther. On the night of 7 December 1940, the British, under General O'Connor, attacked the fortified positions south of Sidi Barrani from their rear. O'Connor's army of 30,000 consisted of the 7th Armored Division and the 4th Indian Division

(the 6th Australian Division later replaced 4th Indian Division). This same force was employed against four different Italian troop concentrations: Sidi Barrani, Bardia, Tobruk, and Beda Fomm. Within two months, two British divisions had advanced 500 miles and defeated an army of ten Italian divisions. In doing so, they suffered about 2,000 casualties, but captured 130,000 enemy soldiers, nearly 400 tanks, and over 800 guns. The Royal Air Force achieved air superiority and destroyed 150 enemy aircraft. The RAF allowed O'Connor's small army to maneuver free from air attacks and enemy aerial observation.

The reasons for the British victories were many. At the tactical level, they had the *Matilda* infantry tank, very heavily armored for that period of WWII. Italian tanks were lightly armored, and much of their equipment was obsolete. At the operational level, the British Army was completely mechanized, while the Italian Army was not. This, combined with the air superiority achieved by the RAF, gave the British freedom of maneuver on a grand scale. In addition, the Royal Navy controlled the sea off the coast of western Libya.

General O'Connor was aggressive, flexible, and commanded from the front. The forces employed were small enough to be controlled by the British command system. Later, in this theater of war, they had difficulty controlling larger (corps-size) mechanized forces in mobile operations against the Germans. The Italian Army suffered from poor leadership; many of the of-

icers were politically appointed. The command system was ponderous; operations were conducted in a sluggish manner. The army had a defensive mentality. The Italians, when faced with the unexpected, such as threats to their lines of communications, tended to panic, then break and lose cohesion.

It can be seen from this example that an army that has mastered the handling of mechanized forces in mobile operations, given the right circumstances, can quickly defeat a defensively-oriented army without suffering excessive casualties. Employ maneuver to achieve local superiority over a portion of the enemy army, destroy its cohesion, and then move to destroy another part of that army. This process works especially well against an enemy tied to its defensive positions.

This is just the type victory required in Kuwait in order to give the United States and its Allies the opportunity to achieve their stated objectives.

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## Obstacle Breaching Techniques

by Lieutenant Colonel David Eshel (IDF, Retired)

Behind a smoke screen, an Israeli assault team moves into action to attack an obstacle belt. The Merkava tank pushes a mineroller. The M3 halftrack carries a Viper line charge, and the NAGMASHOT engineer vehicle, a converted Centurion, carries the combat engineers and their equipment.

Linear defenses based on the Soviet "triple-decker" concept rely on physical obstacles, mutual fire support, and pre-planned kill zones and fire traps, all aimed to delay, stop, or prevent the attacker from breaking through the defense complex.

Most of the obstacles in a desert environment are man-made, using large-scale engineering effort to achieve maximum effect. The Iraqi Army has spent the past few months erecting substantial defenses along the Kuwaiti-Saudi borders. Saddam Hussein has recruited most of his earth-moving resources to undertake a massive fortification build-up, creating obstacles, earth berms turned into fortresses, ramps for elevated tank positions, antitank weapon sites, artillery and rocket

launching sites, protected water, fuel and ammunition dumps, military roads, and communication trenches.

The Iraqi linear defense concept relies on the Soviet basic doctrine, but was modified by Arab armies during the Middle East wars with refinements not seen elsewhere. The Iraqis nearly perfected this concept during the Iraq-Iran war. In the desert-oriented linear defense, there are at least three defensive belts, each contributing to the defense complex in its own way to achieve high attrition rates while engaging the attacker's best units — namely the assaulting forces, which are normally elite formations — with the defender's least effective units deployed forward, while his own elite formations create the

mobile reserve to be used when the defender wishes to make his decisive move. The Iraqi linear defense consists of three rigid (static) lines of defense, integrated into a complex which includes tactical (mobile) and operational reserves, as well as semi-mobile anti-tank elements distributed throughout the system. The forward line of defense stretches close to the FEBA, while the entire complex is guarded up front by a series of defended outposts, tasked to establish contact, engage enemy patrols, and act as alerting forces to an enemy force approach.

The forward line of defense is manned by infantry brigades, each occupying an area of 16-24 square kilometers along four to six kilometers of front line. Usually, in-



fantry brigades are deployed with two infantry battalions positioned forward, the third about four kilometers to the rear. The first line is held by three companies, deployed in company or platoon strongpoints known as "pitas," named after the round, flat loaves of bread common in the Middle East.

Arab forces invented the pita strongpoint and refined the Soviet defense concept of linear, in-depth trench systems because they were not easy to construct in desert conditions. Shifting sands and soft trench walls required constant strengthening. The pita concept solves this problem, providing not only a suitable fortified defensive stronghold, but also elevated firing positions not normally available in the desert. The pita strongpoint is constructed by bulldozers, which scrape the topmost soil layer from inside and outside to form a circular berm up to five meters high.

Unlike the traditional trench system, such berms are excellent obstacles to vehicle movement and act as effective firing platforms for all types of weapons. Pitas, with their inherent elevation advantage, control the normally flat desert terrain with excellent observation and fire. Ramps and firing positions for tanks, ATGMs, mortars, and automatic weapons are dug on the embankment. Semi-circular trench lines for communications and protected movement are dug on the ridge line.

In the empty area between strongholds, the brigade prepares a complex of antitank barriers, well protected themselves and situated in kill-zones, where it expects the at-

tacker to advance or break through after he has penetrated the forward defense zone.

In the intermediate zone, tactical armored reserves are located under cover in dugouts to protect them from artillery and air attack. Typical countermobility obstacles will be anchored on a massive natural or manmade obstacle, such as sand dunes, lava beds, cliffs, gullies, pipelines, or built-up areas. These obstacles are three-dimensional, combining vertical antitank ditches and embankments. Minefields are layered in stretches 80-100 meters wide, scattered with mixed antitank and antipersonnel mines 20-40 meters deep. On the perimeter are the main horizontal obstacles, with trenches, barbed wire fences, and dragon teeth, acting mainly as nuisances.

The Israeli Army has faced Arab-originated defense systems since the early 1960s, first with the Soviet linear trench system, and later — since the 1973 war — with the pita-type fortified stronghold belts. Continuous practice, training, and weapons development have yielded some unique offensive tactical concepts, practiced successfully in the 1967 and 1973 wars. The IDF learned that well trained, balanced, combined arms combat teams can breach these defense belts. Backed by continuous and well placed artillery barrages firing HE and smoke shells, the assault teams combined elite infantry and accompanying tanks, preceded by dedicated assault and mine-breaching equipment. These teams could breach even the strongest defenses.

Since the mid-1960s, all first echelon troops in the IDF practice a special breakthrough doctrine in day, night, and adverse weather con-

*Pitas, with their inherent elevation advantage, control the normally flat desert terrain with excellent observation and fire cover. Ramps and firing positions for tanks, ATGMs, mortars, and automatic weapons are dug on the embankment.*

ditions, while on regular combined arms exercises in all types of terrain. The IDF requested dedicated equipment for obstacle clearing, and a special design component in the ordnance corps became responsible to develop specialist engineering equipment for combat use. Israeli defense industries produced the hardware according to these design concepts, which are currently foremost in the world.

An effective integration of assault engineers in tactical combat units is one of the basic elements of success. The IDF integrates such elements into its combined arms teams at the tactical level. Inclusion of counter-obstacle elements in forward echelons provides the attacking units with the capability to attack in multiple lanes through minefields and across antitank ditches, crush through defenses, and bring the battle right into the enemy position. The IDF also allocated individual obstacle and mine breaching devices to its tanks, which are all fitted to receive these devices. Some are refined versions of the Soviet KMT4 and PT55 attachments adapted to fit IDF tanks of all types. Mine rollers can be replaced by company light aid detachments, working with field equipment, if damaged by exploding mines. Israeli defense industries also developed special cleared lane marking systems to provide follow-on forces with a clearly visible path, both day and night. The Viper rocket-launched line charge system is in-



Wheeled assault bridge is pushed across a trench by an M60 tank. This bridge can be attached to any tank, so the unit does not depend on heavy, dedicated bridgelayer tanks. The tank attached assault bridges are inexpensive and can be left on location for long periods, if required



stalled on an M3 halftrack and uses short burn rockets to deploy the line charge across the minefield. Once on the ground, the Viper is detonated, clearing a narrow lane through the obstacle. To ensure the flow of forces through the obstacle, the initial breaches created by track-width mine plows or Vipers must be widened. This is the task for the combat engineer units, which use either explosive charges or manual mine clearing: still a time-consuming process. Israel developed special explosive charges for the widening of cleared lanes.

Once the assault troops have negotiated the minefields, they must overcome the antitank ditch and its embankment. To cross this steep obstacle requires special techniques, similar to those once practiced in the medieval era. Infantry-trained combat engineers secure the far side of the ditch. They also carry special, lightweight assault bridge ladders, which enable them to negotiate the steep walls. Lightweight assault bridges for tanks are also distributed to forward units. Tanks drag the bridges and push them across the obstacle to bridge the antitank ditches in a few minutes. A faster and lighter

wheeled assault bridge can be pushed across the trench by tanks. This bridge can attach to any tank, so the unit does not depend on heavy, dedicated bridgelayer tanks, which are few in numbers and expensive. The tank attached assault bridges are inexpensive and can be left on location for long periods, if required for follow-on forces. Bridgelayer tanks are not only expensive, but operate by elevating the bridge, making them vulnerable targets, a lesson proved during the Syrian assault on the "Valley of Tears" on the Golan in 1973.

Dozer tanks and heavy bulldozers are also allocated to assault units and provide instant support. They can quickly fill an antitank ditch, breach the embankment, and penetrate the steep walls of a pit fortification. The American Army is also developing a line of dedicated obstacle breaching systems, some

designed along the lines of the Israeli devices.

The current track-width mine-rollers are adaptable to both M60 and M1 tanks. A track-width mine plow is in the inventory now, and a full-width, lightweight plow is in development. These devices go after the mine, not its fuse. The mine is physically removed from its place and can be detonated by other means. However, as cleared track-width lanes are used by follow-up vehicles, they tend to become deeper. As the bellies of following tanks get closer to the uncleared ground, they may set off pressure mines or destroy lane markers. Full-width mine plows overcome this deficiency, and no skip zones remain uncleared. After rollers detect mines, explosive breaching systems are used to save time. The explosive systems destroy about 95 percent of the mines by pressing down on their fuses with overpres-

sure, neutralizing others by pushing them out of the lane. To remove the remaining mines, the U.S. Army has developed an explosive system, the M58A1/A3 (MICLIC). Each charge can clear about 100 meters into the minefield. The 1,750 pound charge, pulled by a rocket mounted on the M353 trailer, is connected to the firing trailer by a 60-meter tether. It clears a lane about 14 meters by 100 meters.

Catapulted fuel-air explosives can also be extremely effective, creating lanes of 20 x 240 meters when firing their entire load. These devices also have a standoff capacity of 100 meters. The U.S. Army now has a new lane-marking system (CLAMS) for day and night use. Using a special dispenser, it can carry 150 luminescent marker candles, which are used in conjunction with breaching and mine proofing efforts, marking the centerline of cleared lanes. Depending on the chemlite used, the candles remain effective from 30 minutes to 24 hours.

The Soviets have designed and developed a wide array of obstacle clearing devices, which rate among the best in the world today. They have, apart from the Israelis, the widest experience in using their designs. The Soviet systems include tank-mounted mine-clearing devices and explosive charges of wide variety.

The typical tank-mounted mine clearing devices, suitable for all tanks in service, include the KMT4 and KMT5 which weigh 7.5 tons. The PT55 (for the T-55) weighs a ton less. The KMT, moving at up to 12 kph, can survive heavy explosions and clear 73-81-cm lanes with each roller. At night, a special, luminous tape-laying device can mark the swept lane.

The SPZ-2 is a metal-framed cable connected to an anchor that is fired across the detected minefield. Once the anchor sticks fast, the explosive charges are connected to the cable end, which is winched across at the rate of 200 meters per hour, and then detonated. The SPZ-4 is a cable assembly that a tank can push, or if using a roller or plow assembly, towed across and detonated by the tank crew. An explosive-filled, rocket-fired line in a boat-shaped container can be used by the T-55 with KMT plow, known to be in service with the Polish Army.

The Soviet mine clearing technique uses KMT tanks, at the rate of one per platoon of three, in forward breakthrough regiments. Deployment normally requires 10-15 minutes with trained crews. The normal procedure calls for the rapid advance of KMT-fitted tanks moving directly into the obstacle. If time allows, engineer scouts will reconnoiter the danger zone and mark lane entrances. Mine breaching is the direct responsibility of the ground commander and not an engineer task. The number of lanes to be cleared depends on the tactical situation. Normally, for a battalion, six to eight lanes will be cleared. It is common practice to develop two of these lanes into six- to eight-meter-wide lanes for the passage of wheeled traffic, but this is the responsibility of the engineer unit attached. The widening process uses explosive charges placed under cover of a smoke screen, with sappers moving forward under cover of supporting fires from tanks and BMPs.

A new mine clearing device has been introduced recently and is usually found in engineer units at division level. Designated the M-1979, it projects an explosive hose

across the minefield. Its detonation clears lanes of up to 180 meters long and six to eight meters wide.

An improved version is mounted on a special tracked vehicle capable of launching two simultaneous hoses under fire. The device shoots 75-meter hoses in sequence, advancing after each launch. The new model has the capacity to straighten the hoses before firing, thus increasing the detonation effect. The explosive hoses are fired by rockets mounted at the rear of the vehicle. However, the device does have problems. If launched over terrain covered with shrubbery, fences, or electrical wires, all of which prevent the hose from lying directly on the ground, the blast effect is considerably reduced.

The multinational forces deployed in Saudi Arabia will have to equip and train thoroughly in the use of dedicated obstacle breaching equipment and its tactical aspects before any attempt to go on the offensive.

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## Tactical Unit Pre-Combat Inspections

by Captain (P) James L. Boling

It has often been said that, "The men do best what the commander checks." While this trite statement seems to indicate an unduly pessimistic view of subordinate professionalism, it does have real merit in that it highlights the commander's responsibility to inspect his unit. This responsibility is most commonly manifested in the unit pre-combat inspection.

The phrase "pre-combat inspection" conjures up images of polished vehicles, dress-right dress, in the motor pool, with troops spitshined at parade rest in front of their immaculate war machines while the battalion or brigade commander troops the line to check for valve stem caps, correct tire pressure, Code-of-Conduct cards, and other important "stuff." This image of the pre-combat inspection persists because many units still conduct these all-day witch hunts in the name of readiness. It is my firm opinion that such inspections discover little of value, exact a toll on morale that is

unwarranted, and bear no resemblance to what will actually take place in combat operations. I absolutely agree that commanders (and other leaders) inspect their areas of responsibilities. I just think that what is checked and how it's checked will be quite a bit different from the motor pool show-and-tell.

A pre-combat inspection (PCI) is an inspection conducted by a unit commander or leader to determine the force's readiness to execute its assigned tactical missions. These inspections may be formal or informal and may be announced or unannounced. Formal inspections are always announced. All leaders and commanders make some type of PCI of their units.

Formal PCIs are the commander's meticulous inspection of all areas within the unit. Formal inspections consume an extraordinary amount of time and preclude "working inspections" because troops are standing down waiting to be inspected

after all combat preparations are complete. Units in combat will rarely have the luxury of time required for a formal pre-combat inspection. Moreover, such an inspection is seldom warranted when subordinates are competent, diligent, and professional.

Most soldiers and their NCOs will take positive action to maintain their equipment and prepare to fight. During these preparations, tank commanders, squad leaders, platoon leaders, and platoon sergeants will routinely make the same exacting rigorous inspections of their men and equipment that the commander would repeat. Therefore, formal PCIs are almost never conducted during combat operations, including during assembly area occupation when preparation for combat takes place.

Informal PCIs are the commander's inspection of particular areas, activities, or units of special interest or concern to him. The in-



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formal PCI resembles a series of deliberate spot checks of key items. The areas inspected and the method and depth of the inspection may vary from unit to unit, or even from vehicle to vehicle, at the commander's discretion.

The commander's experience, in-depth knowledge of his unit and its equipment, and his estimation of the current status of the sub-elements under his command will dictate the particular details of the inspection. For example, the commander may spend more time and look in greater depth at units newly task organized with his command or those units in which officer replacements are new to combat. Units that experience habitual shortcomings will deserve more of the commander's time. He may designate one or more staff members or the executive officer to check certain items. At company level, the commander may use the XO, first sergeant, or master gunner for this purpose.

The informal PCI serves several purposes. First, and obviously, it allows the commander to personally, or through his subordinates, check to ensure that actions are taken in accordance with his decisions and applicable SOPs or standards. Also, it allows the commander the opportunity physically to determine the readiness of the unit from a subjective viewpoint. The commander's knowledge of and experience with soldiers allows him to accurately assess the intangible elements of combat power, such as cohesion, morale, and esprit, that are not reflected in formatted reports and briefings.

This process of checking also enables the commander to exercise personal leadership — something which he cannot easily or normally

do when the unit is in combat and dispersed over a wide area. Personal leadership here means "showing the flag," talking with soldiers, demonstrating a sincere and lasting concern for the welfare of the men under his command, and infusing his confidence and spirit into the unit.

Last, in the informal PCI, the commander and his staff or other subordinates are physically at the assembly area while activities take place — a "working inspection." This allows them to take positive action to expedite actions, fix problems, and set standards as the need arises, not after the fact.

To be most efficient and effective, PCIs must be planned. Planning the PCI does not imply formal inspections or rigid adherence to schedules. PCI planning is the summation of the commander's estimate and decision concerning what will be checked, who will check it, when it will be checked, and in what sequence it will be checked.

Generally, those points that mean the difference between mission success or failure, and those points that serve as indicators of maintenance, readiness, or morale trends within the units, will be checked. Ideally, given enough time, everything in the unit would be checked. However, with the general scarcity of time in combat and the other competing demands on leaders' time during combat preparation, the commander must prioritize what to check.

The number and competence of subordinate leaders or staff members available to assist the commander in his inspections also influence what will be checked. Obviously, with more individuals to do the checking, more can be checked.

With lack of time, and without the same level of expertise in certain technical matters as subordinates or staff members, the commander will habitually delegate some checks to his subordinates. Such delegation ensures adequate coverage of key items, aligns the experts with their specialties, and frees the commander to devote his own time to inspect vital areas, spend more time with soldiers, become more fully involved in troop leading procedures, or conduct personal reconnaissance and coordination. The delegation and execution of PCI tasks must not interfere with troop leading procedures by removing too many subordinate leaders and staff members from tactical planning. Brigade and battalion commanders should avoid allowing subordinate leaders to trail behind them in ever-growing numbers during the inspection, as is common in peacetime.

When, and what specific items will be checked is keyed to both what is being checked and who is checking it. The sequence and duration of assembly area activities is typically known to the command. Ideally, subordinate units should be inspected when they are relatively inactive or stationary. For example, an inspection of Company "B," which coincides with the company's Level III rehearsal, may not yield the sort of results the battalion commander desires. On the other hand, some inspections are oriented on activities, not units. For example, if the battalion S4 wants to ensure that the battalion maintenance platoon is providing adequate support to the mechanized infantry company, he must obviously arrive for his spot check while the maintenance platoon is working with the unit. However, when time is truly short, leaders and staff members must inspect as the opportunity presents itself, even if it is not the best time to

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do so. The execution of combat preparations must never be delayed or artificially sequenced to "fit" the PCI time planning. The surest way to avoid this is to make all PCIs unannounced.

### **Brigade Pre-Combat Inspections**

The brigade commander is limited in his ability to inspect the brigade due to lack of time and lack of detailed technical knowledge concerning all units and activities within the brigade. Time is probably the most limiting aspect of these restrictions. The physical dispersion of the units within the brigade magnifies the criticality of time because movement between units consumes much of what little time is available to the commander. The brigade commander must account for these limitations by prioritizing his inspections and making full use of his staff.

In prioritizing what to inspect, the brigade commander focuses on units, not equipment. The brigade staff may be assigned inspection of units or activities within their respective areas of expertise. The brigade XO, as 2IC, may assist the commander inspecting units, but he will probably be required to devote his entire efforts to staff coordination and planning — especially when time is scarce. In selecting units for his own inspection, the brigade commander is guided by his knowledge of the brigade's units, judgment, experience, and time available. He may invest more time and effort in those units whose combat performance is key to the upcoming operation or those which will constitute the brigade's main effort.

Although the brigade commander can and will inspect anything in the brigade that he wants, the most illuminating inspections are probably the battalion TOCs of inspected

units. At the TOC, the brigade commander can observe the battalion's staff planning and coordination and speak with staff members. His impression of the efficiency, cohesion, and competence of the staff is probably indicative of the battalion as a whole. This is because the planning and preparation for tactical operations is a clear predictor of battlefield success. Moreover, a visit to the TOC allows the brigade commander to determine whether or not his instructions, intent, and priorities are being carried out. To and from the battalion TOC, the commander should make a sincere effort to meet and talk with soldiers. This, too, is an inspection, which together with his impression of the TOC, allows the commander to assess the battalion's intangible elements of combat power.

### **Battalion Pre-Combat Inspections**

Like the brigade commander, the battalion commander is restricted in what he can inspect. However, the battalion commander has less travel between units and has fewer different types of units and equipment with which to contend. The battalion commander has a distinct advantage in that most of the companies in the battalion are usually those assigned to his battalion. The constant relationship between the battalion commander and the companies and platoons under his command allows him to make more rapid assessments of unit strengths and weaknesses. This more detailed knowledge, coupled with his constant personal contact with officers and men, permits the battalion commander to determine quickly what to inspect. Like the brigade commander, he will frequently delegate inspection tasks to staff, XO, or sergeant major.

The battalion commander's inspection is a balance between units, equipment, and men. He inspects the companies and platoons under his command by inspecting equipment and personnel and observing assembly area activities, including rehearsals. The battalion commander physically spot checks selected equipment and vehicles in the battalion. Because men are directly connected to these pieces of equipment and vehicles, any such inspection is also a personnel inspection. Like the brigade commander, he concentrates on those units and officers who warrant the time and effort invested. The battalion commander should attempt to inspect each company and special platoon in the battalion, including attachments. The battalion commander must also inspect his own combat vehicle with the level of detail equal to any other vehicle commander in the battalion. The battalion commander should make a special effort to inspect, visit with, and rehearse with the company he will maneuver with in combat.

### **Company Pre-Combat Inspections**

Ideally, the company commander inspects every vehicle, major weapons system, and soldier in his unit, including attachments and CS assets that will maneuver with the company. His inspection is as thorough and painstaking as time allows. Lack of time may force the commander to inspect fewer items than he would like. The XO, first sergeant, and master gunner may assist the commander in checking those items that he does not have the time to adequately inspect himself. Subordinate leaders will also inspect their areas of responsibility. However, no matter what other inspections take place, or who conducts them, the commander will still

inspect each vehicle and soldier in the unit. Regardless of time available, his inspection must be a hands-on physical inspection. A "troop the line" cursory cheerleading approach to this inspection is totally unsatisfactory, fails to set the proper tone, and will not adequately prepare the unit for the experience of combat. The commander's intimate knowledge of the men and individual vehicles and equipment under his command allows him to zero-in on specific leaders and pieces of equipment whose strengths and weaknesses he knows in detail.

The company commander should inspect, by platoons, one vehicle at a time with the platoon leader. He inspects his own and the XO's and the first sergeant's vehicles. He may inspect a certain item on each vehicle, such as boresight or fluid levels, and/or he may vary inspected items and check two or three items from each category of drive train, track/suspension, weapons, commo, and NBC. The commander must also inspect individual equipment and weapons. Deficiencies are corrected immediately. The commander must set and enforce the standards of the company. The commander employs every leadership

tool at his disposal to encourage and invigorate the spirit, morale, and confidence of the officers and men under his command. Without the company commander's personal direction and leadership, the standards of performance and professionalism will probably be set by inexperienced junior officers.

I began this article with an old saw about men doing best what the commander checked, and I'll conclude with another hoary chestnut – "Train the way you'll fight." The Army's renewed emphasis on war-fighting skills has breathed life into this expression, but the resuscitation effort hasn't seemed to reach the pre-combat inspection yet. Combat on the modern battlefield will be chaotic, continuous, highly lethal, and executed at an incredible tempo. It will present our tactical unit leaders with unprecedented leadership challenges, especially lack of time and resources. These modern combat leaders must be able to access rapidly and accurately the readiness of their personnel and equipment, and, at the same time, exploit every opportunity to infuse their spirit, determination, and will to succeed into their commands. Mastering the leadership, technical, and tactical skills em-

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bodied by realistic pre-combat inspections is one step toward meeting these challenges on tomorrow's battlefield.

## 1991 Armor Conference

### *Schedule of Events*

#### **7 May 1991**

- *Registration*
- *Displays*
- *Retreat Ceremony*
- *CG's Garden Party*
- *Regimental Assemblies*

#### **8 May 1991**

- *Late Registration*
- *Welcome*
- *Keynote Address*
- *Report to the Force*

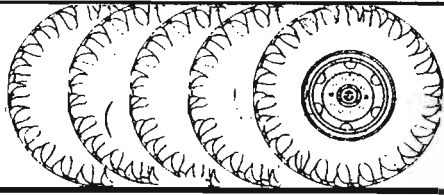
- *Armor Association General Membership Meeting*
- *Displays*
- *Banquet*

#### **9 May 1991**

- *Presentations*
- *Chief of Armor Address*
- *Closing Remarks*

#### **10 May 1991**

- *Brigade/Regimental Commanders' Assembly*



## Making Light Forces More Flexible and Responsive

by Lieutenant Colonel Tom Rozman



MARINE LAVs IN PANAMA

### Introduction

"A leaner, meaner force, but smaller," means the smaller force has to cover more bases. If a sizeable portion of that force will be a light force, how can this light force compete effectively with heavy or motorized forces on the possible battlefields of the future? The answer may be a system of tailored augmentation with light armored vehicles (LAVs).

### Background

What is the threat, and more important, what is the ground force the nation must sustain to meet it? National-level planners are struggling with threat assessment, force design, and force levels that make sense in an environment that seems to change by the minute. The more reflective concerned citizen probably prays for resulting policy that will be sensible and prudent. But what might be characterized as the "Post Cold War Policy Maelstrom" has produced interests calling for a far more radical approach. Some of

these interests, having already drawn their own conclusions on the threat picture, are pressuring for very rapid and significant reductions of ground forces.

Whatever the results of the developing contest between prudent sensibility and radical revision, some policy factors are obtaining increasingly clear definition. For example, we are learning that the threat can be anything from a highly sophisticated, massive force that can effectively field the full spectrum of military capabilities and sustain them, to small forces of varying levels of military capability and organization, such as the regular army of a small Third World nation, to a body controlled by opposition political or criminal interests. Depending on infrastructure, commitment and tactical and operational skill, even smaller forces have demonstrated a disturbing ability to tie up large quantities of ground force when national policy has dictated a response with U.S. troops.

Additionally, the immediate conventional wisdom seems to say that

the likelihood of the more extensive military situation is remote, therefore, current military force levels are not necessary. Consequently, planners can probably count on less force to respond to this potentially wide range of threat environments. There is an implication that this force may be less standard in its components than any standing force maintained by the United States in the past.

In such an emerging environment, several obvious questions about force structure are worth asking. If ground force must respond more frequently to threats at the median or lower end of the conflict spectrum, e.g., organizations that have limited capabilities, is an Army oriented on heavy force imperatives valid?

Conversely, can the nation afford to swing its emphasis to a cheaper light force orientation? Is a more prudent policy to continue to maintain a force that can reasonably respond to threats across the spectrum? If the answer to the last question is yes, how can such a



*If, with this smaller total Army force structure we find the Army committed against a more intense threat, how do we quickly and efficiently augment the heavy component from existing force structure?*



force be managed on reduced resources?

The assumption of this article is that the Army will have to be organized and equipped to respond across the entire war and threat spectrum well into the 21st century. The article will focus on an organizational and equipment approach for light force that offers a means to create an integrated, flexible, sustainable, and deadly Army on any battlefield against any threat and on relatively economical terms. It discusses the augmentation of light forces with Light Armored Vehicles (LAVs).

#### **An Approach to a Flexible and Responsive Ground Force**

In describing a force approach, I propose to do so from the perspective of an adaptation from the basic force components of ground force as we know it today. Essentially, the Army organizes three types of ground force elements; heavy, light, and Special Operations Forces (SOF). Integrated into these elements in greater (traditional maneuver such as heavy and light) to lesser (SOF and aviation) degrees are combat, combat support, and combat service support.

Additionally, the trend toward developing warfighting concepts that package these components into integrated combined arms forces of heavy, light, SOF, and aviation is well advanced. As previously noted, the Army must probably respond to an array of threats. This requirement has challenged Army planners and developers to produce effective systems of organization, command and control, equipment and training that assure a smooth meshing of the

apparently disparate force elements of heavy and light into force teams that can work efficiently toward mission accomplishment.

Light forces are the most flexible, strategically mobile and economical of the force elements when substantial and sustained ground holding forces are required. However, numerous studies of the military establishments of many developing nations indicate the capability to field, among other things, armored forces of multi-battalion size with at least 105-mm main-gun equivalents and modern fire control. When this aspect is combined with the continued need to maintain some credible level of heavy force to meet alliance obligations in the more intense battle environments but, within a smaller force structure, an indication of possible force solutions begins to emerge.

The solution takes shape through two questions. First, if a significant portion of a smaller Army will be of a light configuration that may require "heavying up," based on necessary tailoring to the type threat to be encountered, what is the mechanism that allows responsive adjustment? And, if with this smaller total Army force structure we find the Army committed against a more intense threat, how do we quickly and efficiently augment the heavy component from existing force structure?

In proposing a solution, we must keep in mind that the heavy force is the most challenging type of ground force to train, sustain, and continually modernize. With a reduced force structure, there may be significant lag time in generating heavy force individual and unit replacements.

Therefore, existing light forces may have to fill the void.

Light forces, as organized, can certainly fill some force needs on the high-intensity battlefield, such as terrain denial and rear area security. However, if a nonlinear battlefield predominates, the light force contribution will be limited by its inherent weaknesses in protection, organic mobility, and heavy direct and indirect weapons.

To examine another situation, what if the light force component is committed to a Third World contingency? As the most strategically deployable part of the force against lesser threat capabilities, this deployment is valid. But, what if the force must face a threat that has substantial heavy force elements? As noted, this is a real possibility. Our reduced heavy force structure, and most probably reduced strategic deployment assets, will make existing heavy force elements unresponsive, and rapidly deployable light forces vulnerable on introduction into the theater of operations.

Because the Army can reasonably expect either of these situations to occur, how does it solve the problem?

Light forces are the most responsive type of force structure for contingency operations, but they lack both tactical and operational mobility and the firepower critical for some missions. How could they gain needed mobility and the survivable, mobile, heavy support and assault weapons they need?

A start at a solution is to attack the mobility and lethality dimensions. We would need to add suffi-

cient ground mobility to the light force so that it could augment a heavy force or compete with threat heavy forces. This mobility would have to be controlled by the light force element and be integrated with its tactical organization and methods. Giving the force its own means of mobility would not add to the burden of existing aviation and ground transportation units and would not become unavailable when extremes of weather denied flight or road movement. Another requirement is that the added mobility and firepower would have to lend itself to rapid movement on existing air and sealift.

Finally, we have to add this mobility and firepower without compromising the essential character of the light force.

A reasonable solution may be available, one that has been developing and improving over the years. There is now available a whole array of wheeled armored chassis, ranging from nine to 15 tons, that are capable of providing crews and infantry some level of protection against fragmentation and small arms and, with proper use of covered or concealed routes, heavier weapons. Though such vehicles are not designed for heavy assault, they could provide responsive and effective tactical and operational mobility that allows the light force movement to terrain where it can best use its capabilities. Newer systems, such as the eight-wheeled light armored vehicle (LAV), can provide excellent tactical mobility and superior operational mobility on road nets, yet cost far less than light tracked systems.

In terms of its organizational management, how could a light force gain this capability without compromising its nature?

Several alternatives come to mind. One might be to pre-position sets of vehicles, while providing a company set for training at the home stations of light units scheduled to reinforce. When scheduled to deploy to locations without pre-positioned equipment, a light force would keep its vehicle sets ready to deploy and use training sets for necessary sustainment and refresher training.

Certainly, other options — such as permanent motorized organization — could be considered, but my choice in this article is to emphasize light force orientation with the option of augmenting its capabilities when the mission requires.

Wheeled armor can also provide expanded firepower in the heavy environment. Vehicles are available to carry automatic cannons, heavy mortars, assault guns (currently up to 105mm), and enhanced command and control equipment, as deemed fiscally supportable and operationally necessary. It is important to note, however, that more sophisticated systems need permanently organized and trained soldiers to employ these systems. This impacts on the force structure equation and threatens to compromise the streamlined organization of the light force. Simply to add a wheeled, light armored carrier for the light force would provide a relatively economical solution to tactical and operational mobility in the heavy environment. The wheeled systems are somewhat easier to train and maintain than tracked systems. Tactical training, too, would be simplified if light forces used these vehicles primarily to "beat" threat into position or to quickly withdraw from position. Light forces would continue to stress their "stock in trade" — holding ground. Given these limitations, the training burden should be manageable.

Even if the light force were augmented with wheeled carriers and weapon systems, its employment would still orient on terrain suited to light force strengths — broken terrain or built-up areas. This force would not be employed properly if used as a mounted assault arm.

This approach, which assumes that the Army will retain a mobile heavy force component, uses wheeled systems as a means of bridging the compatibility gaps — tactical and operational — of light forces, first in the mobility area, second, in the lethality and other system areas. The concept still views light force as light force.

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## Cavalry in the Defense: A Historical Vignette

by Captain Douglas W. Dunklin

On 16 December 1944, German forces launched Hitler's last major offensive on the Western Front through the Ardennes Forest, in what has come to be known as the Battle of the Bulge. Troop C, 18th Cavalry Reconnaissance Squadron, was to play a critical part on the first day of the battle in one of the weakest areas of the battlefield — the Losheim Gap.

The 18th Cavalry Reconnaissance Squadron, Mechanized (CRS), commanded by LTC William F. Damon, Jr., along with the 32d CRS, was assigned to the 14th Cavalry Group. It was organized into three cavalry

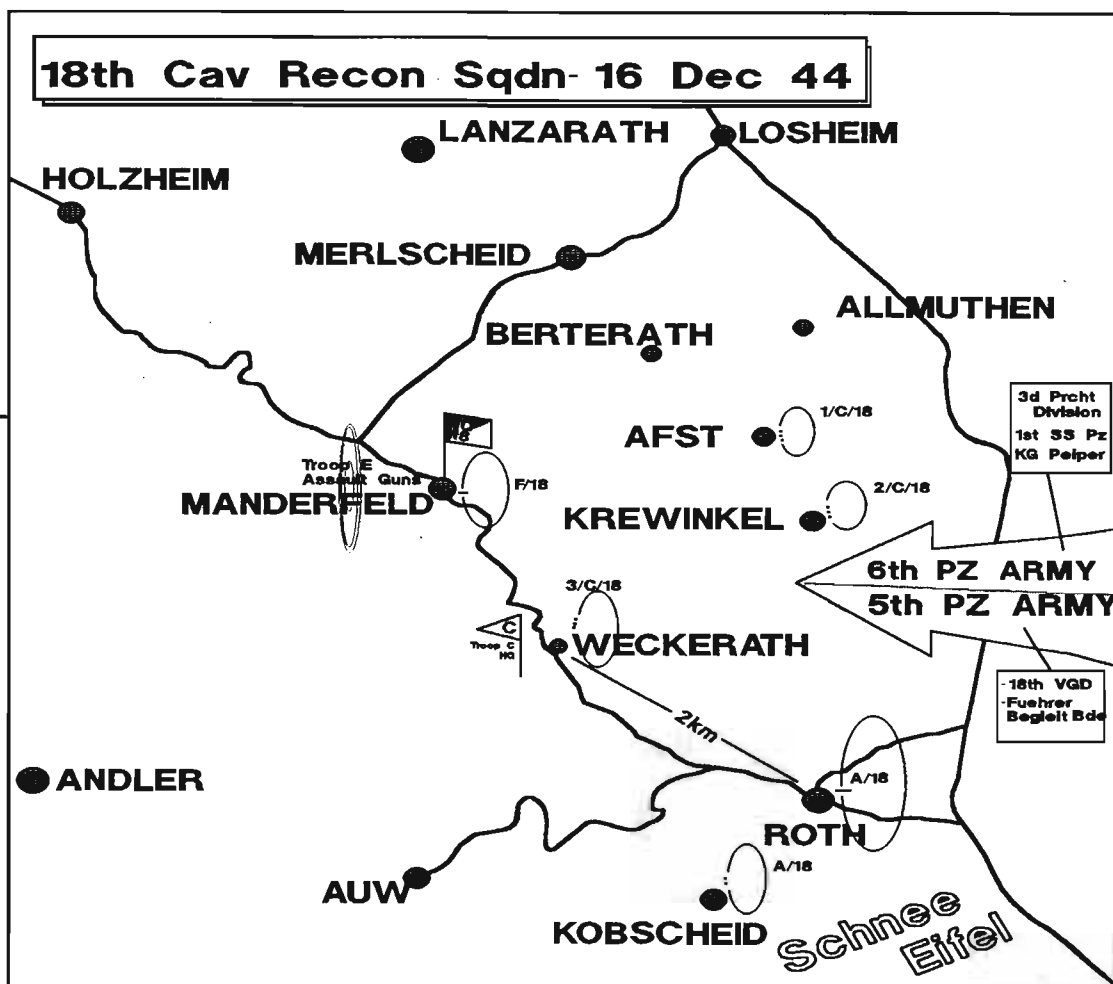
recon troops, an assault gun troop, a light tank company, and a headquarters and service troop. The cavalry recon troops, A, B, and C, each had a headquarters section with maintenance, supply, and mess teams, and three recon platoons. Each platoon was equipped with three M8 armored cars in the armored car section, and six jeeps in the scout section. Armament included three 60-mm mortars, three .30-caliber machine guns, and the .50-caliber anti-aircraft and .30-caliber coax machine guns and 37-mm cannon on the M8 armored car. The headquarters section was equipped with two M8s, four M3A1

*The Germans then began their assault under the eerie artificial moonlight caused by bouncing the beams of searchlights off the low cloud cover.*

half-tracks, five jeeps, and one 2-1/2 ton truck. The troop, when fully manned, had 145 men, 29 in each line platoon.<sup>1</sup>

The assault gun troop, Troop E, was equipped with eight self-propelled 75-mm howitzers, and Company F had 17 M5 light tanks, organized into three platoons of five tanks each and a headquarters section. Although the table of organization called for a fourth recon troop, Troop D, neither the 18th CRS or the 32d was organized with one.

Troop C, with the rest of the 18th, arrived on the continent shortly



after the Normandy landings and participated in a few minor actions in France. On 19 October 1944, the 18th was detached from the 14th Cav Group and attached to the 2d Infantry Division in the Ardennes. At this time, the Ardennes was considered by the Americans to be a rest and recuperation area. Hot showers, beds, the USO, coffee and doughnuts were available only a few short miles from the front. New units were being sent here for initial combat blooding, because the action was negligible compared to the rest of the front, and tired veteran units were sent here for rest and refit. Because of the types of enemy units American forces were initially facing, the Allies believed that the Germans were doing the same. The 106th Infantry Division G2 report on 13 December stated, "It is probable that the enemy uses this sector

for refilling and refitting these [18th and 26th VolksGrenadier] divisions before they move elsewhere."<sup>2</sup>

The 28th CRS occupied former infantry defensive positions in the Losheim Gap, on the far left flank of the 2d ID, which was also the boundary between the VIII Corps and the V Corps' 99th Infantry Division. This gap is a valley approximately seven kilometers wide, formed by the headwaters of the Our River, and is between the Schnee Eifel to the southeast and the Honsfelder Wald to the north. The Schnee Eifel is a large, densely forested ridgeline running northeast to southwest. Because of the constrictive terrain and the road network, any mechanized attacks from the east were canalized either north or south of the Schnee Eifel. Troop B was detached from the squadron

at this point and sent south to the other end of the Schnee Eifel at the division's far right flank.

Troop C occupied village strongpoints in the center of the gap, 1st Platoon in the village of Afst, 2d Platoon in Krewinkel, and 3d Platoon in Weckerath. The troop headquarters was also located in Weckerath. Each platoon had well-concealed dug-in positions east of its respective village with extensive barbed-wire obstacles to the front. Because the cavalry troop was designed for mobile reconnaissance and not a static defense, the heaviest weapons available were the vehicle machine guns, which were dismounted and placed in the fox-holes and dug-in positions. The 1st and 2nd Platoons' fields of fire extended out 1500 meters to the Roth-Losheim road, which was good be-

cause their longest range weapons were the 37-mm gun on the armored car with an accurate point range of 1000 meters; and the .50-caliber machine gun, with a range of 1600 meters. The snow, heavy at times, also limited visibility to two miles. Third Platoon could see about the same distance into the villages of Krewinkel to the northeast and Roth to the southeast.

The villages of Roth and Kobscheid were occupied by Troop A, and Company F occupied the town of Manderfeld along with the squadron headquarters. Troop E deployed its assault guns along the ridgeline to the west of Manderfeld. There was a gap of almost two kilometers between Troop A in Roth and 3d Platoon, Troop C in Weckerath, and a gap of 2.5 kilometers between 1st Platoon and the 99th Infantry Division to the north. This was patrolled at regular intervals by the 18th CRS.

On 11 December, the 106th Infantry Division, a green outfit that had just completed a miserable march to the front through the worst winter in 50 years, replaced the 2d Infantry Division. Their soldiers were frozen and exhausted as they took the positions vacated by the 2d Infantry. On the same day, the 14th Cav Group headquarters moved into Manderfeld and assumed control of the gap. COL Mark Devine, the group commander, immediately realized how thin his defense was spread, and although he had Company A, 820th Tank Destroyer Battalion (towed three-inch guns), his 32d CRS was still detached from him and was 25 miles to the rear in Vielsalm. COL Devine placed most of the antitank company in the northern gap in the

villages of Berterath, Merlscheid, and Lanzerath, and gave a recon platoon to 2d Platoon, Troop C, and two recon platoons to Troop A in Roth. He then spent the next few days feverishly planning a delaying action back to Manderfeld, and gave the 32d CRS instructions to reinforce should the Germans attack. Unfortunately, his plan was not ready until the night of the 15th, and was supposed to be given out on the 16th – the day of the German assault. He also attempted defensive coordination with the 106th Infantry headquarters, but to little avail.<sup>3</sup>

Meanwhile, on the other side of the lines, the German plan had the boundary between the 6th Panzer Army in the north and the 5th Panzer Army in the south running between Troop C's 2d and 3d Platoon positions. The 3d Parachute Division (nine battalions of infantry) would lead the attack in the north, followed by the 1st SS Panzer "Liebstandarte" Division, a veteran unit of about 130 tanks. The lead element of this division was Kampfgruppe Peiper, a task force of 72 MkIV and MkV tanks, 25 assault guns, and 4000 troops. On the right flank of the 5th Panzer Army's advance, there were two regiments of the 18th VolksGrenadier Division (two battalions of infantry each) with one company of tank destroyers and one company of assault guns attached. Following behind was a tank unit, the Fuehrer Begleit Brigade. All these units would face the meager forces in the Losheim Gap.

Although it is widely held that the sudden German offensive was a complete surprise to the Allies, one has to wonder if the troops on the

front line were really surprised. It is possible that the magnitude of the imminent onslaught escaped them, but the increased activity, at least in the vicinity of the Losheim Gap, should have been a dead giveaway. The 106th Infantry Division G2 reports for the period immediately preceding the attack show a dramatic increase in aggressive enemy patrolling and a significant increase in vehicular movement. In fact, on the 14th of December, the 106th reported this vehicle movement to V Corps, but the information was considered unreliable and was ignored due to the 106th being a new and inexperienced unit. The 106th had actually correctly identified the 2d Panzer Division moving into the area.

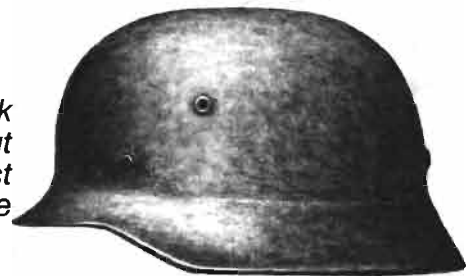
The 1st platoon leader of Troop C, 2LT Max Crawford, took an eight-man patrol to Allmuthen on the night of the 15th with the intention of ambushing the enemy to capture a prisoner. What actually happened was that the small American patrol ran into a large 30-man German patrol. Although 2LT Crawford's patrol managed to get away unscathed, the enemy took one of his men. Second Lieutenant Crawford reported to the squadron S2 during the patrol debrief that he had never seen such a large enemy presence in the town.<sup>4</sup>

The German patrolling gained them valuable insight about the American defenses. The Germans quickly identified the two-kilometer gap between Weckerath and Roth, and the German command made plans to exploit it, as they indeed later did. What is almost amazing is that the 106th Infantry had detected these patrols between the two villages and yet apparently did not at-





*As the Germans were pulling back to regroup again, one called out "Take ten - we'll be right back!" First Lieutenant Ferrens replied "We'll be waiting, you son-of-a-bitch!"*



tach any significance to them. Regardless of who knew what, at 0530 on 16 December, the Germans began their attack with a massive artillery barrage that knocked-out most of the wire communications in the 18th CRS's sector. The Germans then began their assault under the eerie artificial moonlight caused by bouncing the beams of searchlights off the low cloud cover. In the 1st and 2d Platoon positions just east of Afst and Krewinkel, the cavalrymen were brushing off the dirt from the artillery when they sighted the lead shock companies of the 3d Parachute Division. The enemy was advancing on the two villages in "columns of four."<sup>5</sup> They were marching unconcernedly, talking and singing as if they were only on maneuvers. Apparently they did not see the platoon's positions until it was too late. The 2d Platoon leader, 1LT Kenneth Ferrens, allowed the enemy to approach to within 20 meters of the barbed wire before he gave the command to fire. The German columns disintegrated under the withering fire, survivors running in panic. The 2d Platoon had also waited until the last moment, and had the same results. The Germans regrouped and advanced again, but this time were more cautious, dispersed, and came in waves. Even though the defenders fought well, the weight of the attack forced them out of their positions and back into the villages, where they also had well prepared positions. The 2d Platoon in Krewinkel fought from a stone church and

school, and repelled another heavy German assault, in which 50 enemy got into the town, just before 0600. As the Germans were pulling back to regroup again, one called out "Take ten - we'll be right back!" First Lieutenant Ferrens replied, "We'll be waiting, you son-of-a-bitch!"<sup>6</sup> The cavalrymen of 2d Platoon had killed between 150 and 300 enemy in their fight, and 1st Platoon in Afst killed 30. During this lull, the troop executive officer, 1LT Aubrey Mills, arrived in Krewinkel in a half-track loaded with ammunition. He then moved on to resupply the platoon in Afst, and was killed by a stray bullet as he began to return to the troop command post.

At 0600, the area took another massive artillery barrage, the troops in Krewinkel counting over a hundred rounds of various calibers landing in their village alone. The prep fire was followed by another heavy German assault, which was finally beaten back. By late morning, only two Americans in the two northern platoons had been wounded, and the XO was the only death. It was obvious, however, that the villages of Afst and Krewinkel could not continue to be so fortunate and were in great danger of being overrun.

The 3d Platoon, just east of Weckerath, also had excellent dug-in positions with barbed wire to the front. Shortly after the attack began in the north, lead troops of the 18th

VolksGrenadier Division began to assault the platoon. They were stopped at the wire and driven back by machine-gun fire, mortars, and accurate American artillery fires. Two German companies attempted to flank the platoon's positions, using the woodline to the south, to get into Weckerath in the platoon's rear. The 20 or so men in the troop headquarters, which was in the town, held them off with small arms fire until a platoon of light tanks, dispatched from Manderfeld by the squadron commander, arrived at 0930 and stopped the attempted enemy infiltration.

The defense in the rest of the squadron sector did not fare quite so well. Troop A's platoons in Roth were quickly surrounded and eventually overrun, and the Germans made good use of the gap between Roth and Weckerath. At 1100 troops in 3d Platoon observed and reported an enemy formation of 15 "tanks," most likely assault guns, and a battalion of infantry moving southwest toward Auw. The light tanks and artillery fired on them, but had little effect.

Earlier, at 0930, COL Devine had given orders for the 32d CRS to begin movement toward Manderfeld; it arrived at Manderfeld about 1100 and began deploying to the west of the village. At noon, he ordered the 18th CRS to withdraw to Manderfeld, but as the forces in Roth had been overwhelmed, and those in Kobschied could not dis-

engage, Troop A was unable to comply. Third Platoon of Troop C, with two tanks from the light tank platoon in the lead, moved out of Weckerath with two M8 armored cars, its jeeps, and various vehicles from the troop headquarters. Because of the fact that no time had been available during the fight to warm the vehicles' engines, the oil in the crankcases and transmissions were still congealed by the extreme cold. The retreat from the village was made with "guns blazing"<sup>7</sup> at the agonizingly slow speed of 10 to 15-miles-per-hour, with German infantry firing on the column the entire way. Miraculously, the cavalymen suffered no injuries. They had also escaped the village just in time, for no sooner had they withdrawn than the village was completely destroyed by artillery. The 1st and 2d Platoons withdrew from Afst and Krewinkel at 1240 without incident. Second Lieutenant Crawford was the last man out of town, firing a bazooka at a German assault gun pursuing the column. The trail elements reported hundreds of infantry moving into the towns. These were the lead elements of 1st SS Panzer Division's Kampfgruppe Peiper, whose commander had grown tired of waiting for the 3d Parachute Division to break through the American defenses.

Troop C arrived in Manderfeld relatively intact, and at 1400 was formed, along with Troop E, into a task force commanded by MAJ J.L. Mayes, which counterattacked to a road junction one mile north of Manderfeld.<sup>8</sup> Although the counterattack was stopped, Troop E inflicted heavy casualties on the enemy. This gained time for the squadron and group headquarters to begin withdrawing from Mander-

*They were alert in their positions when the attack began, and the platoon leaders' decisions to hold their fire until the enemy was extremely close apparently demoralized the initial German attack at Afst and Krewinkel.*

feld. The group deployed to a ridgeline west of the town and established hasty defensive positions from Holzheim to Andler. Task Force Mayes delayed back along the Losheim-Manderfeld-Holzheim road, and reached Holzheim at dusk.

As a cavalry reconnaissance unit, Troop C, along with the rest of the 18th CRS, was not designed to conduct a deliberate defense, but rather for fast-moving, mobile reconnaissance. Even so, it performed remarkably well because the disciplined soldiers constructed well concealed positions with good fields of fire, integrating wire obstacles into their plan. They were alert in their positions when the attack began, and the platoon leaders' decisions to hold their fire until the enemy was extremely close apparently demoralized the initial German attack at Afst and Krewinkel. Even though they greatly outnumbered the Americans there, the Germans were unwilling to press the fight and, therefore, slowed the attack of the following tank task force.

The cavalymen held out as long as they did against such overwhelming odds with just their small arms because they were only faced with dismounted infantry. If, however, the Germans had attacked with their armor in the lead, it could have been much worse for the Americans as they had no weapons,

except for the puny 37mm on the armored cars, that could defend against the German tanks. As it was, they fought hard and delayed the enemy for a few hours, giving the higher commanders some desperately needed time.

## Notes

<sup>1</sup>Table of Organization 2-27, Cavalry Reconnaissance Troop, of Cavalry Reconnaissance Squadron, Mechanized, 1943.

<sup>2</sup>106th Infantry Division After-action Reports, December 1944 to March 1945; G-2 Periodic Report 13 Dec 44.

<sup>3</sup>Peter Elstob, Hitler's Last Offensive (New York: Macmillan Co., 1971), p. 120.

<sup>4</sup>Charles B. MacDonald, A Time for Trumpets (New York: William Morrow and Co., Inc., 1985), p. 96.

<sup>5</sup>Elstob, p. 130.

<sup>6</sup>MacDonald, p. 106.

<sup>7</sup>Ibid., p. 109.

<sup>8</sup>Hugh M. Cole, The Ardennes: Battle of the Bulge, U.S. Army IN World War II, (Washington, D.C.: Government Printing Office, 1965), p. 149.

Captain Douglas W. Dunklin graduated from North Georgia College with a BA in Political Science and was commissioned as an Armor officer in 1984. He has served as a tank platoon leader at Fort Hood, Texas; as a tank company XO and battalion S3 air in Germany. A graduate of the Armor Officer Advanced Course at Ft. Knox, he is currently assigned to the 24th Infantry Division at Ft. Stewart, Ga.

# Tank Destroyers in WWII

*Sent to war in vulnerable vehicles,  
tank destroyer crewman sometimes triumphed  
in spite of their flawed doctrine...*

*...Bravery and a big gun made the difference.*

by First Lieutenant John A. Nagl

By the time of Ninth Army's offensive on the Roer Plain in November 1944, 2d Armored Division tankers had learned how to fight German Panther and Tiger tanks with their M4 Shermans. They knew that the 13-inch long, low-velocity shells they fired from their 75-mm guns would not penetrate the thick frontal armor of Panthers and Tigers at any range, but would do damage only to the sides and rear of their heavier opponents. Sherman tankers, therefore, attacked by platoons, capturing the enemy's attention with one platoon and maneuvering around to the enemy's rear with another. The only vehicle that could take on Panthers with any certainty of success was the M36 "Slugger" tank destroyer, armed with a 90-mm gun, but very lightly armored and without overhead protection for its gunners.

Shortly after dawn on November 17, 1944, the 1st and 2d Battalions of the 67th Armored Regiment were drawn up on a slope outside Puffendorf, ready to attack toward Gereonsweiler. Suddenly, 20 to 30 Panthers and Tigers of the veteran 9th Panzer Division attacked the Shermans. Strong artillery support



An M10 "Wolverine," the most numerous U.S. tank destroyer, was under-armored, out-gunned, and too often used as a tank.

from both sides pinned down the infantry and created a true tank-against-tank battle. It went poorly for the Americans.

The German tanks commanded the high ground, and sloping terrain around the American position made it impossible for the Shermans to maneuver around to their rear. Worst of all, the Sherman's 75- and 76-mm guns were almost completely



ineffective against the heavier German tanks. One Sherman fired 14 rounds before seeing any effect on a Tiger. When some of the American companies were down to three or four tanks, the battalion commanders called tank destroyers forward from their traditional position in the rear. The 90-mm-equipped M36 "can openers" beat off the German tanks, but the day's action was costly. The 2d Armored lost 38



medium and 19 light tanks and suffered more than 350 combat casualties in the day's action.

An Armor School report on the battle ascribed the holdup at Puffendorf, described as "the biggest tank battle in 2d Armored experience," to "the inferiority of our tanks in guns, armor, and maneuverability." One tanker, interviewed two days after the battle, was more explicit:

"Our Ordnance Department needs to get on the ball."<sup>1</sup>

The story of why American tanks were outgunned at Puffendorf and had to call on tank destroyers to drive off the German tanks is closely wound up with the history of the Tank Destroyer Corps. Their units now only a memory, tank destroyer personnel accounted for roughly six percent of the four field armies in

the European Theater of Operations during the Second World War, comprising 56 separate tank destroyer battalions, 13 group headquarters, and one brigade headquarters.<sup>2</sup> One Tank Destroyer Group and eight battalions saw service in the Pacific, and tank destroyers also served in North Africa. However, barely a year after the end of hostilities in Europe, all tank destroyer battalions were deac-

tivated, and the weapons system was never again employed by the U.S. Army.<sup>3</sup>

Although tank destroyers are no more, the story of how and why they were developed and deployed, and why tank destroyers were discontinued, has important lessons to offer Army leaders of today. These lessons include the necessity for integral antitank capability in infantry units at all levels; the imperative of emphasizing combined arms operations in training for the battlefield, and the need for doctrine to identify and exploit the weaknesses of threat forces. Finally, and most important, the history of tank destroyers in the Second World War stands as a stirring example of the courage and resourcefulness of the American soldier who overcame imperfect doctrine and outmatched vehicles to fight to victory.

### Creation of the Tank Destroyer Corps

*A tank is easy prey for artillery of all calibres.*

*-General Ludendorff, 1918*

The success of Germany's blitzkrieg doctrine in overrunning Poland and France in 1939 and 1940 forced a reappraisal of the concepts that had governed tank defense since the first appearance of the weapons during the First World War. There were two schools of thought on how to defend against tanks:

- "Meet fire with fire" by attacking tanks with other tanks supported by close air support.

- Defeat an armor attack with the traditional infantry/artillery team, supported with an armored force, but primarily by use of specially organized antitank units.

This debate in many ways echoed the debate of the First World War over whether tanks should be used in an infantry support role or as a tactical weapon in their own right. The debate had been won by the infantry support argument, leading in 1920 to an amendment to the National Defense Act, which abolished the independent Tank Corps and assigned all tanks to the Infantry. The belief that tanks existed only "to facilitate the uninterrupted advance of the rifleman in the attack," in the words of a 1922 field manual, implied that tanks could also be stopped by depriving them of their infantry support. This understanding of the usefulness of tanks in land warfare persisted long after the blitzkrieg's success had proven it to be incorrect.

Antitank assets, like tanks themselves, remained under the control of the Infantry far longer than experience indicated they should. It was not until the autumn of 1940 that infantry regiments in a division received an antitank company, which, together with the antitank guns in division artillery, gave the division 68 antitank guns. (The French Army had been destroyed by Panzers, with 58 antitank guns in a division.) General George Marshall demanded more emphasis on antitank warfare than the infantry was willing to provide, and established a planning branch to take charge of antitank warfare on 15 May 1941. It fell under the control of LTG Lesley J. McNair, General Headquarters chief of staff, who firmly believed that special antitank units were the best way to defeat tanks. On July 21, 1941, he argued:

*Decisive action against a tank attack calls for a counterattack in the same general manner as against the older forms of attack. A counterattack may, of course, be delivered by*

*other tanks, but the procedure is costly. There is no reason why antitank guns, supported by infantry, cannot attack tanks just as infantry, supported by artillery, have attacked infantry in the past. Certainly it is poor economy to use a \$35,000 medium tank to destroy another tank when the job can be done by a gun costing a fraction as much.*

It was with this philosophy that General McNair established the Tank Destroyer Center at Fort Meade on 1 December 1941. The mission of the tank destroyers was to engage and destroy enemy armor, thus permitting American tanks to focus on what General McNair considered their primary role: exploiting breakthroughs and destroying enemy rear areas. This tactical doctrine required a powerfully armed and very mobile gun carriage; the mobility requirement and demand for a low-cost system meant that the tank destroyer would have to be lightly armored. This necessitated a unique doctrine.

Tank destroyers were intended to defeat enemy tanks attacking *en masse*. They were to be held in division or corps reserve until such an armored thrust was identified. Once the direction of the enemy attack was identified, the tank destroyers would deploy to positions previously prepared along likely avenues of approach and ambush the attacking columns. Under no circumstances were the tank destroyers to engage in head-to-head "slugging matches" with tanks, nor be split up into smaller than battalion-sized units and parcelled out to front-line infantry units; their light armor would not allow such missions.

The news of General Rommel's success in the African desert with the 88-mm antiaircraft gun against



British armor reinforced this untried doctrine. This information "convinced Army Ground Force planners...that the proper adversary of the tank was the antitank gun rather than another tank, a conviction that to some extent hindered Ordnance in developing a more powerful tank than the Sherman."<sup>4</sup>

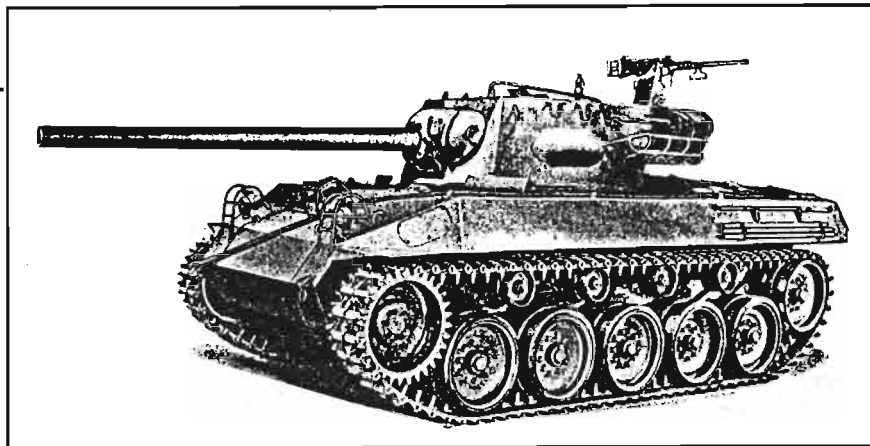
While the doctrine may have been successful against a pure armored attack, the belief that the Germans would attack in this way was erroneous at the beginning of the war — and became increasingly incorrect as the war dragged on, and the Allies moved over to the offensive. The Germans had suffered huge tank losses in the invasion of the Soviet Union by the time American forces engaged them, and the strategic bombing offensive took a heavy toll on German tank production. An officer who fought with the tank destroyers in Europe, Major Ralph W. Lang, explains how doctrine changed in the field:

*In view of the reduction of the size of the attacking ground force, it was no longer necessary to employ the tank destroyer battalion in mass with its tremendous firepower... Therefore, it was generally decided that the tank destroyers should furnish close antitank support to the front-line units.*<sup>5</sup>

The vehicles of the tank destroyer battalions made this a very risky operation.

### **Wolverines, Hellcats, and Sluggers**

Doctrine dictated that the tank destroyer "shoot and scoot" from a distance and not engage in close combat with heavy forces. It, therefore, needed a large main gun and light armor protection. Because it would not be closely engaged with the infantry, an open turret, allow-



Because of their much more advanced torsion bar suspension, the later M18 "Hellcat" TDs were the fastest tracked armored vehicles to be used in WWII. The open-top turret and very skimpy armored protection made them vulnerable, and their 76-mm guns lacked punch.

ing good 360° visibility, would present no danger to the crew. The fact that actual employment of the tank destroyers tended to be in direct infantry support meant that tank destroyer crews were sadly unprotected in combat.

There were originally three types of tank destroyer battalions: light towed, light self-propelled, and heavy self-propelled. The light battalions were equipped with the 37-mm gun, which soon proved far too light to defeat even the smallest threat tanks, and in 1942, the Army moved entirely to the heavy self-propelled gun, which was a French 75-mm mounted on a half-track. The poor automotive performance and high silhouette of this system led the Army to create the first truly successful tank destroyer, the M10 "Wolverine" armed with a three-inch gun. Half of the tank destroyer battalions were equipped with the towed M5 three-inch gun in 1943, but the poor performance of the towed gun in offensive operations led to its early demise.

The M10 was unable to penetrate heavy German armor. Its projected replacement, the M18 "Hellcat," armed with a 76-mm gun, made its first appearance in January of 1944. The 76-mm gun had identical armor-piercing characteristics as the three-

inch gun it replaced, but was substantially lighter, allowing the removal of a heavy counterweight which had hung on the rear of the M10 turret. It offered more ammunition storage at the cost of less armor protection for its crew.

The most successful tank destroyer was the M36 "Sluggo" with a 90-mm main gun. It was the only American system capable of defeating Panther and Tiger tanks at long range. However, like all of the tank destroyers, the M36 offered inadequate armor protection for its crews, and was vulnerable to artillery airbursts and small arms fire.

### **Trial By Fire**

The concept of antitank defense, which had dominated American military thought in the 1930s and was reinforced by American perceptions of the German blitzkrieg through France, gained additional support during the early fighting in North Africa. Because American and, to a lesser extent, British tanks were poorly armed in comparison to the German tanks of that era (the British Army upgunned the 75-mm Sherman to a 17-pounder, which was far more capable than the American version), antitank guns had more success against the



The M36, because of its 90-mm gun, was often misused as a main battle tank, despite its lack of crew protection.

German armor than did the tanks. At the Battle of Kidney Ridge on 27 October 1942, in the southern portion of the Alamein position, the 2d Battalion of the Rifle Brigade had great success against the German tanks with its six-pounder guns. The lesson learned by the American Army was not that the tanks needed more firepower, but that infantry with tank destroyers could defeat armored attacks.

The result was unfortunate for the soldiers who fought in the European Theater. "During 1944 and 1945 American soldiers found their weapons inadequate to deal with German tanks. The reason for this was a combination of two factors: doctrine and knowledge of the enemy. Doctrine dictated that American tanks should not be armed to fight other tanks. A poor

evaluation of the enemy coupled with very limited experience in fighting his tanks provided no reason to change doctrine."<sup>6</sup>

When the Normandy battles showed the 90-mm gun of the M36 to be the only weapon capable of dealing with heavy German armor, demand from the front lines for the tank destroyer increased dramatically. More than 1400 of the 90-mm tank destroyers were produced by the end of 1944. However, they were used not in the role for which they were intended, but as main battle tanks in their own right.

Tank destroyer crews suffered heavy casualties as a result. Crews improvised turret covers ranging from canvas shelter halves to deflect hand grenades, to a folding steel top, which was standardized in August 1945; nothing but a fully-armored top, however, would have protected the crews against the preferred German tactic of calling

in artillery airbursts against the tank destroyers.

Although losses were heavy whenever the tank destroyers were employed in the front lines in direct support of armor and infantry forces, commanders had no choice; nothing else could defeat the German armor. In the tank battles of the Roer Plain in November 1944, the three battalions of Sherman tanks in the 67th Armored Regiment killed only five Panthers. The 702d Tank Destroyer Battalion assigned to the 67th Armor claimed 15.<sup>7</sup>

### **The Legacy of the Tank Destroyers**

When officers of the European Theater of Operations studied their combat experience after the war, they noted that tank destroyers were almost never used in the role that doctrine assigned to them, but instead fought in frontline units

where they suffered from inadequate armor protection. These officers believed that a tank with a heavy main gun could better perform the mission of the tank destroyer, and therefore recommended that "tank destroyers as a separate arm be discontinued."<sup>8</sup>

Still, the American experience with tank destroyers was hardly an unprofitable one. As Captain Murray A. Louis pointed out in *ARMOR* Magazine in 1965, "A number of the lessons learned from the history of the tank destroyers are now official doctrine — especially the cross-attachment of relatively small armor units with mechanized infantry and armored cavalry to afford antitank protection and violent offensive power against enemy armor and fortified strong points."<sup>9</sup>

In 1962, *ARMOR* asked its readership if tank destroyers should be returned to active service. First Lieutenant George G. Chapman argued that they should not, pointing out that the main battle tank could perform all of the missions required: "attack, defend, retrograde, destroy any known tank in the world, be utilized for screening and reconnaissance missions, and fight and survive on the atomic battlefield." Because the tank destroyer could perform only a fraction of these tasks, "We should not expend our production capabilities on a limited fighting vehicle that can perform only half the mission."<sup>10</sup>

However, since the early 1960s, both the capabilities of armored vehicles and the threat which the U.S. Army must confront have changed dramatically. While the main battle tank remains an extremely capable weapons system, it pays for that capability with heavy

fuel requirements and very limited strategic mobility; if main battle tanks are not already in position when needed, it is extremely difficult to transport them to trouble spots quickly. This is likely to become more and not less of a problem as the spectrum of conflict shifts away from Europe toward more distant trouble spots.

This description of tank destroyers in action may provide a model for how similar weapons systems could be employed in future conflict:

*In the offensive against tanks, TDs relied on mobility and heavy firepower to offset the disadvantage of their light protective armor. They operated on the offensive in conjunction with heavy armor and were utilized to supplement the speed and firepower of the slower but more heavily armored vehicles. They were particularly adapted to this role when soggy terrain would not support the weighty tank. The TD vehicle, with less ground pressure, could maneuver through friendly units, outmaneuvering hostile armor as well, using this capability to attain an advantageous position, accomplish its fire mission, and move to the flank or rear for another strike.*<sup>11</sup>

Many of the lessons of the American experience with tank destroyers have already been incorporated; the necessity for all Army combat forces to possess an integral antitank capability, for example, has been recognized and largely met. The lesson that tanks must be able to defeat threat tanks has also been learned, if at great cost.

If tank destroyers serve as models for the development and employment of future light armored systems, then the sacrifices of the sol-

diers who fought in the "can openers" of the Second World War will again be repaid — in spades.

## Notes

<sup>1</sup>Linda Mayo, *The Ordnance Department: On Beachhead and Battlefield*, (Washington, D.C., Office of the Chief of Military History, U.S. Army, 1968), pp. 322-326.

<sup>2</sup>Dr. Christopher R. Gabel, "Seek, Strike, and Destroy: U.S. Army Tank Destroyer Doctrine in World War Two," *Leavenworth Papers #12*, (Fort Leavenworth, Kansas: Combat Studies Institute, 1985), p. 52.

<sup>3</sup>Gabel, p. 65.

<sup>4</sup>Mayo, p. 33.

<sup>5</sup>Major Ralph W. Lang, "Tank Destroyer Development," *Armored Cavalry Journal* 56:4 (July-August 1947), p. 31.

<sup>6</sup>Charles M. Baily, *Faint Praise: American Tanks and Tank Destroyers During World War II*, (Hamden, Ct: Archon Books, 1983), p. 142.

<sup>7</sup>Mayo, p. 327.

<sup>8</sup>Baily, p. 139.

<sup>9</sup>Captain Murray A. Louis, "Seek, Strike, and Destroy: Tank Destroyers in the ETO," *ARMOR* 74:5 (September-October 1965), p. 26.

<sup>10</sup>1LT George G. Chapman, "Tank Destroyers," *ARMOR*, 72:2 (March-April 1963), p. 3.

<sup>11</sup>Major William F. Jackson et. al., *The Employment of Four Tank Destroyer Battalions in the ETO*, (Fort Knox, Ky.: AOAC Staff Study, May 1950), p. 126.

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*Despite the hype and glitz, the questions that brought the earlier AGS development program to an inglorious termination are still unanswered. Do we really know what we want?*

## The Armored Gun System Debate: Let It Begin Before It Is Too Late

by Lieutenant Colonel James Etchechury

Next to qualification gunnery, it seems that nothing gets an armor soldier more excited than a display or demonstration of a new combat vehicle. That was the case at Fort Bragg during the AGS Rodeo in July 1990. The event attracted representative systems from prospective developers only recently frustrated by the Army's cancellation of the promising and much needed replacement for the Sheridan. The displays reflected industry's work completed in the earlier development effort as well as efforts to meet similar requirements from both on and offshore.<sup>1</sup> It seems as though the Sheridan was well suited for the motorpool at Fort Bragg, but missed the mark when put to the test in JUST CAUSE, and now DESERT SHIELD. The marginal performance and lessons learned in these deployments, and some harsh memories of Vietnam, have brought home the urgency of the replacement requirement.

Despite the hype and glitz, the questions that brought the earlier AGS development program to an inglorious termination are still unanswered. Do we really know what we want? Are we looking for a tank killer that can support infantry or are we looking for an infantry support vehicle that can kill tanks? Are they the same? Do we really want to drop it out of airplanes, or is air-landing a suitable operational capability? Have we considered the marginal costs for this capability and its marginal utility? Are we

going to take advantage of recent technological developments in MBT systems, or buy off the shelf? Does buying off the shelf imply higher life cycle costs? What about training support? Embedded training is a proven concept, but is it required or desired? How about maintenance support? Will we use BIT? Can a NonDevelopmental Item (NDI) acquisition strategy be modified to include a Preplanned Product Improvement Program (PIP) to meet these requirements? These are issues in which the user community needs to get involved, not just with a few officers secreted away in a special task force, but in open discussion in the media, in *ARMOR*.<sup>2</sup>

This is not going to be the classic research, development, and acquisition program studied at Defense Systems Management College (DSMC). It has all the urgency that recent combat experience and increased public awareness bring.

Let's not kid ourselves about increased public awareness; it generates micromanagement by the congressional staff, which is already making itself felt. Restrictive language has been written into the FY91 authorization bills that requires the Army to give more attention to AGS procurement, specifically to use a modified NDI approach to acquisition.<sup>3</sup> Similar language is likely to appear in the appropriations bills. Nevertheless, the parallels to the early days of the M1 program are striking, and should

provide us a warning and a guide for the road ahead.

Today's AGS program has all the urgency of the M1 program in 1977, but nowhere near the same user/developer/political support. In those dark days, we were changing our orientation from counterinsurgency to conventional defense of NATO. The equipment we had was a full generation behind the Soviets because of the investment in Vietnam. The great marriage of requirements with the Germans (the MBT-70 program) had ended in amicable but irreconcilable divorce. The continuation (XM-803) was recognized as an economic and technological failure. A special task force, formed under the wing of the Armor Center commander, defined the new main battle tank and the context in which trade-offs needed for design flexibility could be made.<sup>4</sup> Today, we are trying to short-circuit the requirements process with a Required Operational Capability (ROC), modified from a previously failed effort. No special task force has been organized to scrub those requirements, to analyze the previous acquisition strategy to identify causes of failure, or to generate a solid proponent. The parallel to the continuation of the MBT-70 as the XM-803 is clear. Starting down this path without a good analytical basis or comprehensive acquisition strategy is potentially a prelude to another failure. We need to replace the Sheridan, but the "anything is better, just buy it now"<sup>5</sup> approach

recommended by some authors will only cause an endless series of problems for the acquisition staff and the soldiers who get the equipment.

What lessons should we draw from the XM-803 cancellation and the successful transition to the M1? If we are to short-circuit the process, the entire Armor, Infantry, and acquisition community must get involved. Bold efforts are never quietly executed in the back rooms. They are public and boisterous; witness the raucous debate that accompanied the M1 through every step of the acquisition process. We want the AGS badly, and I fear we will get it just that way if we don't speak out.

What is this thing called an Armored Gun System? The words conjure up a mental picture of the Sturmgeschutz assault gun, the Jagdpanther antitank gun, the Self-Propelled Antitank Weapon (SPAT), and the ONTOS (6 x 106-mm recoilless rifle). But the Sheridan is too lightly armored to be considered an assault gun. Is it a tank destroyer? I refuse to use the bastardized official acronym, dare I use the term light tank? Which of these roles will the replacement for the Sheridan fill? With the many potential wheeled and tracked combinations available, the weighting of the requirements will be critical. Consider the difficulty of comparing the relative merits of the TCM/GDLS (a front-engined, pedestal gun, tracked) version with the LAV 105 (a prototype being developed by the Marine Corps).

History teaches us that the more a combat vehicle looks like a tank, the more likely it is to be used like a tank and in that comparison to come up wanting in mission performance. The tank destroyers of WWII looked and were employed so like tanks that they destroyed the

## The AGS:

### Past Solutions - Powerful Guns, Little Armor



ONTOS



SPAT

The ONTOS mounted six 106-mm recoilless rifles (RCLRs) on an open, tracked chassis. The gun system offered a lot of punch and its low recoil forces permitted a light, mobile chassis, but RCLR backblast signature compromised survivability. The SPAT (Self-Propelled Anti Tank) vehicle mounted a powerful 90-mm cannon, but like the ONTOS, it left its crew vulnerable to artillery airbursts.

### New Concepts: Better Protection, Bigger Guns, And a Choice of Tracks or Wheels



FMC's CCVL

Millions in government and industry funds have been spent on meeting the need for more deployable firepower. The solutions range from conventional turreted light tanks to the pedestal-gun, autoloated Teledyne/GDLS, and from tracks to wheels.



Teledyne/GDLS



The LAV 105

branch.<sup>6</sup> While this may not seem a significant threat now, I can remember the tank versus missile debate that threatened to displace our tanks with ITVs, and earlier cavalry TOEs that included Sheridans where tanks are currently issued. Will this drive us to a wheeled version to maintain a distinction at the cost of the tactical mobility of a track?

We must ensure all the players in the acquisition process understand that the AGS is not a substitute for the main battle tank. At the same time, the proposed creation in the light force structure of the light cavalry regiment<sup>7</sup> will need explanation, lest all cavalry regiments become light forces. Here are just a few additional issues<sup>8</sup> that I think are worth public debate:

- **The ROC:** Is airdrop a reasonable requirement? A combat imperative? Or a desirable performance characteristic? The lessons learned<sup>9</sup> in JUST CAUSE indicate it is quicker to get the Sheridans in action if they are air-landed rather than air-dropped. The deployment in DESERT SHIELD seems to be met by the airland capability. If these are typical of the battles we will fight in the future, why are we asking for more capability? Have we considered the impact of this requirement on the acquisition strategy? How much are we willing to pay for this capability?

- **Sunk Costs:** Industry has made significant investments in prototypes. (FMC invested \$26 million in the CCVL. Teledyne invested \$16 million in the



TCM/GDLS AGS candidate. I cannot guess at the total investment if all potential candidates are included.) The Marines are investing \$50 million in LAV 105. The Army invested \$30 million in vetronics since the last major combat vehicle deployment. How can we leverage these investments into a highly capable system with lowest development cost? We can't afford to let these investments slip away.

● **The Schedule:** The schedule announced at the AGS Rodeo and in discussions with interested parties is keyed to user requirements: First Unit Equipped (FUE) FY 94. The M1 took seven years to get the first unit on the ground for operational testing. That unit was dedicated to the test, not part of our expeditionary force. How will this affect the acquisition process? Can we reasonably expect our expeditionary forces to maintain their readiness while supporting operational testing? Will the FUE drive out candidates who do not have warm production lines and leave us with a technologically outdated system?

● **Economics:** What is the national economic outlook? Do we believe that, during a recession the American public and its elected representatives will allow a billion dollar procurement to go offshore? Does this limit the competition unfairly? What alternatives are available?

● **Compatibility:** Are the offshore candidates compatible with our training and logistic support structure? By going NDI, are we getting a cheap procurement with inflated life-cycle costs? I've heard some disparaging remarks about the purchase of the Thyssen Henschel Fuchs (Fox) that indicate we have some things to learn about provisioning and training support for NDI.

● **Support:** What is the training support concept? This vehicle will

have a very low density Army-wide. If we total the Sheridans at Fort Bragg, Fort Knox, and the NTC, there are just about as many Sheridans as there will be AGSs if the full complement is purchased to support all the light divisions. Until recently, the Army did not train any crew or maintenance support functions for the Sheridan at Fort Knox or Aberdeen. (The U.S. Army Armor School will begin Sheridan training in early 1991. For details about the course, see *Bustle Rack*, page 51.)

My list is not intended to be complete, but to remind the Armor community that if the user doesn't communicate, the product is developed in a relative vacuum, and the civilian decision makers do not recognize the good ideas from the bad.<sup>10</sup> In the foreseeable future of constrained and micromanaged budgets, we will never again have the luxury of "normal" development processes. As a result, the user needs to be vocal, to get involved in support and dissent, and more visibly in the process. The user is every tanker from private to colonel who has fought a Sheridan from Vietnam to Saudi Arabia. They must speak out in the pages of *ARMOR* and the other journals that are available. Broad-based user discussion creates the correct tradeoff atmosphere and allows the decision-makers to put their decisions into focus. Those decision-makers will be the engineers on the Source Selection Board (SSEB), the Army and DoD accountants and auditors (who know little of tanks), and the congressional staff (who know too much). They read these journals to understand us. The discussion of AGS has started with one opinion that "the Sheridan will meet the needs of the commander."<sup>11</sup> Let's hear from the other users, now! The more these influential people read, the better they will understand us, and the better they will support us.

## Notes

<sup>1</sup>Lopez, Ramon, "U.S. Army Dusts Off AGS," *International Defense Review*, 9/1990, pp. 997-9.

<sup>2</sup>TRADOC Pamphlet 70-2, *Material Acquisition Handbook*, HQ, U.S. Army TRADOC, Ft. Monroe, Va., 9 September 1980, pp. 14.1 - 14.25.

<sup>3</sup>National Defense Authorization Act for Fiscal Year 1991, S.2884. U.S. Government Printing Office, Washington, D.C., 1990, p. 4.

<sup>4</sup>Kelly, Orr, *King of the Killing Zone*, W.W. Norton and Co., New York, 1989, pp. 90-94.

<sup>5</sup>Bruno, Thomas A. and Broom, John T., "A New Day for Armor or the Last Glimmer of Sunset?," *ARMOR*, September-October 1990, p. 8.

<sup>6</sup>Baily, Charles M., *Faint Praise: American Tanks and Tank Destroyers in WWII*, Archon Books, 1983, p. 139.

<sup>7</sup>*Armor: Balanced Force for the Future*, USAARMC White Paper, Ft. Knox, Ky., p. 19.

<sup>8</sup>*Acquisition Strategy Guide*, Defense Systems Management College, Ft. Belvoir, Va., July 1984, Chap. 5.

<sup>9</sup>Hammond, Kevin J. and Sherman, Frank, "Sheridans in Panama," *ARMOR*, March-April 1990, pp. 8-15.

<sup>10</sup>Wooster, Harley K., Jr., "Recoilless Rifles: Lightweight Firepower for Army Light Forces," *Armed Forces Journal International*, October 1990, pp. 76-78. This article is cited as an example.

<sup>11</sup>Beverage, Harold G., "Armor Support in Low- to Mid-Intensity Conflict," *ARMOR*, September-October 1990, p. 15.

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# The French Armor Corps: A Branch in Transition In a Changing Army

by Major Timothy R. Decker

*The Armor and Cavalry Branch will experience some of the most profound changes of any element of the French Army, changes that will touch every aspect of its organization, materiel, doctrine, and training.*



France's new AMX Leclerc MBT

SFC Jody  
Harmon  
07 Nov. 90'

When it begins fielding the Multiple Launch Rocket System (MLRS) in 1990-1991, the French Army will start a period of unprecedented force modernization. The decade of the 1990s will bring the same tremendous change to the French Army that the 1980s brought to the U.S. Army. In addition to the MLRS, France will field the *AMX-Leclerc* main battle tank, the *Hades* missile, and continue the fielding of

the AU F1 155-mm howitzer. A force structure reorganization is currently in process with the elimination of one corps headquarters, the creation of the Franco-German brigade, and the transition from six to three military regions within metropolitan France.

The Armor and Cavalry Branch will experience some of the most profound changes of any element of

the French Army, changes that will touch every aspect of its organization, materiel, doctrine, and training. The descendants of Ney, Lyautey, and Leclerc are fiercely proud of their heritage and traditions. Horsemanship is considered an integral part of a cavalry officer's training, and every regiment has its *salle d'honneur* (room of honor) that traces the unit's history, campaigns, and heroes. Nevertheless,

the Armor Corps and its leaders are firmly focused on the present and the future. It is a branch in transition in a rapidly changing army.

With a strength of 27,000 personnel — 2,250 officers, 5,700 NCOs, and 18,500 soldiers — the Armor Corps represents approximately 11 percent of the French Army. Organized around a core of professional officers and NCOs, the branch contains 250 officers, 700 NCOs, and 16,000 soldiers performing their one-year national service as draftees. The 19 tank and 13 light armor regiments are divided among two corps, eight armored divisions, and the *Force d'Action Rapide* (FAR - Rapid Action Force). (The Armor Corps also counts an airborne reconnaissance regiment, the *13eme Regiment de Dragons Parachutistes*, among its units. This is a unique, combined arms, strategic asset employed by the First French Army, and it is beyond the scope of this article.)

To date, France's main battle tank is still the AMX-30B or -30B2. In service since the late 1960s, it is comparable to the U.S. M60A1, particularly in the "B" configuration. It has a 105-mm rifled main gun, coincidence rangefinder, manual transmission, and no passive night vision devices. The "B2," though based on the same hull and turret as the "B," is considerably more modern, having an automated fire control system and a "semiautomatic" transmission.

Some AMX-30B2s are equipped with a low-light television camera for limited visibility firing, much like the passive version of the M60A1. A very few AMX-30B2s are equipped with the "Castor" thermal sight; in

## The AMX-30 Series: France's Current MBT



The AMX-30 is an older design in the class of the U.S. M-60



AMX-30B's low-light TV camera is on the right side of the turret.

## French Light Armor: A Preference for Wheeled Vehicles

The AMX-10RC, at right, is a wheeled light armor vehicle with a 105-mm low-pressure cannon.



Below, the VAB with HOT missile system.



At right, the ERC wheeled armored vehicle, equipped with 90-mm gun.





## New Artillery System And a New Light Vehicle For French Forces

Recent additions to the French Army include the VBL, above, which meets similar roles and missions as the U.S. HMMWV, and the AU F1 self-propelled 155-mm artillery system, at left.

this configuration the tank is somewhat similar to the U.S. M60A3.

Light armor vehicles, found in corps reconnaissance regiments, in the armor regiments of motorized infantry divisions, and in the FAR, are the AMX-10RC, the ERC-90 "Sagaie," the VAB-HOT antitank missile carrier, and the VBL.

The AMX-10RC has a 105-mm low-pressure cannon, and the ERC-90 is equipped with a 90-mm gun. Both vehicles fire a multitude of munitions, including an armor-piercing, fin-stabilized, discarding SABOT (APFSDS) round.

The four-wheeled VAB-HOT (*Vehicule de l'Avant Blinde* - "Forward Armor Vehicle") is equipped to fire the HOT antitank missile. The HOT's 4000-meter range and wire guidance system make this vehicle comparable to the U.S. M901 ITV.

The VBL (*Vehicule Leger Blinde* - "Light Armor Vehicle") is a four-

wheeled, armored, NBC-protected, amphibious vehicle that is replacing the World War II-era jeeps. Like the High Mobility Multipurpose Wheeled Vehicle, the VBL has multiple possible configurations; in armored cavalry units it carries the *Milan* antitank missile system.

### The AMX-Leclerc Main Battle Tank

For a variety of reasons, France did not modernize its main battle tank fleet in the late 1970s and early 1980s, as did the U.S. and Germany. This will change with the introduction of the *AMX-Leclerc* main battle tank in late 1991. At an estimated cost of 28 million French francs per tank, or approximately 5 million 1990 dollars, it is the most ambitious, costly, conventional modernization effort in the history of the French Army. The first third-generation main battle tank, the *Leclerc* has significant implications for doctrine, individual and unit training, and force structure. For the French Army, the *AMX-Leclerc* will

have much the same effect that the Block III had on the U.S. Army.

The *AMX-Leclerc* will have a 1500-horsepower "hyperbar" engine, an automatic transmission with six forward and two reverse speeds, a 120-mm smoothbore gun, a fully-automated fire control system, a stabilized turret, an automatic loader, a databus, and a battlefield management system. The tank commander's stabilized viewer can rotate 360 degrees and has a day and a passive night channel. The gunner's sight will have a day and a thermal channel for limited visibility firing. The tank commander will be able to acquire targets and hand them over to the gunner at the push of a button to align the gunner's sight with his viewer. The tank commander will also be able to automatically align the main gun at the 6 or 12 o'clock position in relation to the hull.

Compared to the U.S. M1A1 or the German Leopard II, the *AMX-Leclerc* represents several sig-

nificant advances. First, it will be the first Western main battle tank to have an automatic loader and a three-man crew. The automatic loader, which can load a round every four seconds, permits the tank to engage six targets per minute. Second, the databus system represents a significant advance in relation to second-generation tanks like the M1/M1A1 or the Leopard II. The *Leclerc's* electronic components will be connected to the databus, eliminating the multitude of cables and connections found in the M1/M1A1's turret and hull. Components will exchange data via the databus, thus speeding the transfer of information and improving system reliability. Third, the *Leclerc's* battlefield management system will automatically transmit and receive factual and logistical information via a burst-transmission, frequency-hopping radio.

The tank commander will constantly have his tank's position and logistical status at his fingertips. By designating a target with the laser rangefinder, he will know its grid coordinates, greatly increasing the accuracy of a call for fire or a spot report. Tanks will transmit information to one another and to higher headquarters, and receive orders via the tank commanders's monitor screens, thereby simplifying command and control at all levels.

The Armor and Cavalry Branch Studies and Experimentations Bureau, located at the Armor and Cavalry School at Saumur, is charged with writing doctrine for the *AMX-Leclerc*. Because it represents such a drastic departure from its predecessors, many questions will have to be answered after units have gained practical experience with the tank, and doctrine will remain in draft until the mid-to-late 1990s. The bureau is scrutinizing

how to capitalize on the tank's shoot-on-the-move and night vision capabilities, for it feels that these characteristics will revolutionize armor employment when combined with the *Système Informatique Régimentaire* command and control system (SIR-Regimental Automated System.) Pronounced "ser," this system is similar in concept to the U.S. Battlefield Management System. The SIR will have a variety of capabilities that will aid the commander and his staff to plan operations and logistics, and to produce and transmit orders to superior and subordinate units. Still in its developmental stage, the SIR shows great promise as a command and control tool.

The French Army views the *AMX-Leclerc* as the centerpiece of the modern battlefield, but it recognizes that the tank will fight in a combined arms environment involving infantry, engineers, artillery, and attack helicopters. The Armor and Cavalry Studies and Experimentations Bureau and the French Army Staff are working to describe how combat, combat support, and combat service support units will operate together on the battlefield. To this end, armor-infantry cooperation is being scrutinized, with the possible redefinition of mechanized infantry's role, at least until it has a combat vehicle that permits it to fight "alongside" the *Leclerc* on the heavy, conventional battlefield. The Armor and Cavalry Branch is on the leading edge of the French Army's evolving employment doctrine because *AMX-Leclerc*-equipped units will be the first to gain experience as part of an integrated command and control system linking combat, combat support, and combat service support units to synchronize all arms and services. The lessons they learn will help to define how the entire



View through the "Castor" thermal sight on the French AMX-30B.

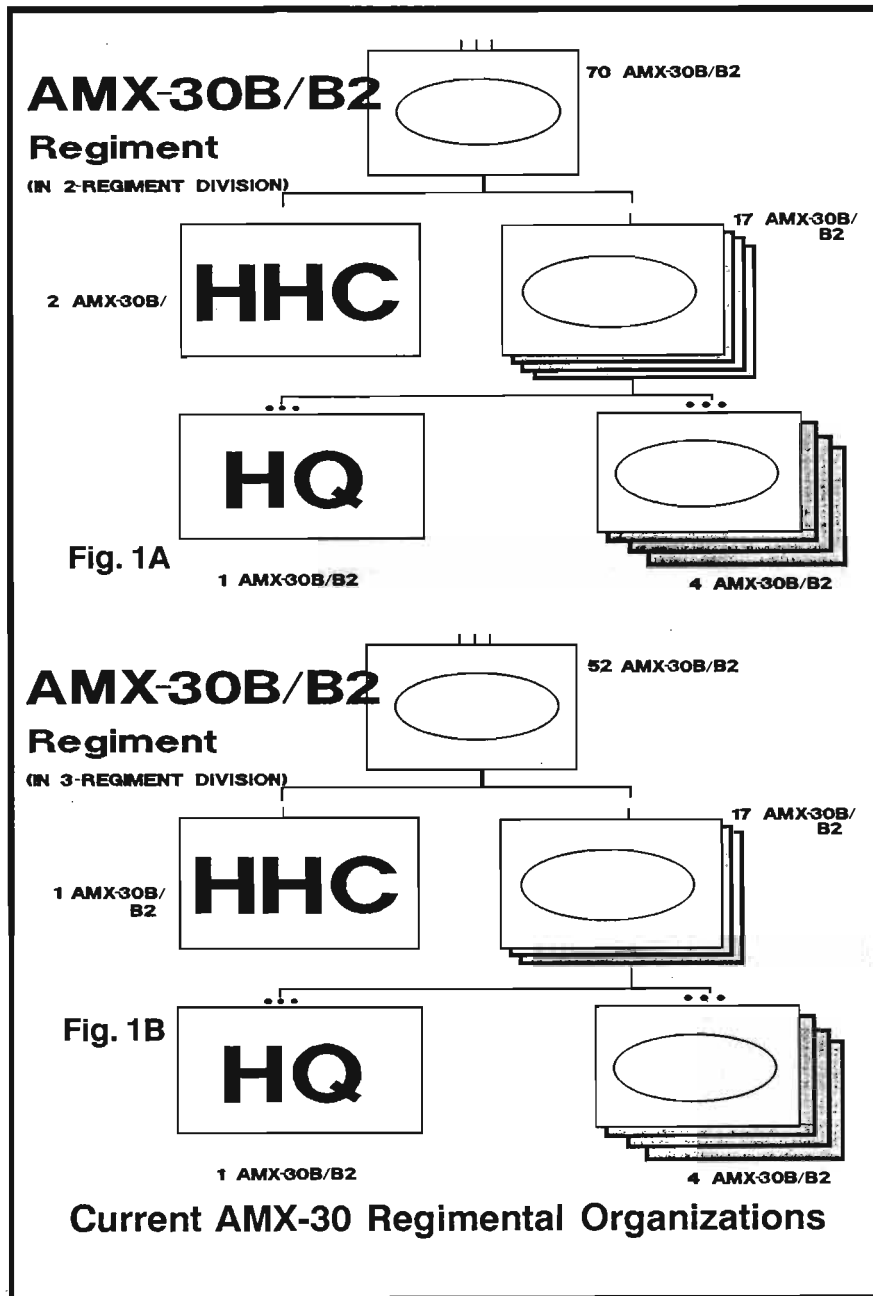
French Army operates on the conventional battlefield.

The Armor and Cavalry Instruction Center, located at Carpiagne in southern France, will be the *AMX-Leclerc* fielding site. Units will come to the center to draw their tanks, undergo training, and then depart for their home garrison with the new equipment, much in the same fashion as U.S. units go to the Combined Arms Training Center at Vilsseck, Germany, for New Equipment Training. Individual training will change due to the reduction in crew size from four to three personnel and the tank's greatly increased capabilities. The French Army is studying the necessary aptitude level for an *AMX-Leclerc* crewmen, for it is certain that the tank's sophistication will require soldiers to have a higher overall level than is currently demanded of an AMX-30B/B2 crewman.

Currently, a French tank regiment contains either 70 or 52 tanks, depending on its division's organization. (Figure 1) If the unit is in a division that has two tank regiments, its 70 tanks are distributed among four four-platoon squadrons. Tank units belonging to divisions that have three armor regiments have 52 tanks divided among three four-platoon squadrons. (A squadron is the equivalent of a U.S. company.)

Though the tank regiment's structure will change with the *AMX-Leclerc's* arrival, the final decision concerning its organization has not





yet been made. Figure 2 shows the candidate organization for the *Leclerc* regiment. The concept is a radical change from current organizations, for the unit is divided into two 40-tank squadron groups.

During peacetime, the regiment would regroup administrative and logistics functions to save infrastructure and personnel costs. In wartime, the regimental commander, a full colonel, would move to division headquarters to advise the division commander on armor employment,

and the squadron groups would fight independently. Two regiments, the *503eme Regiment de Chars de Combat* and the *4eme Regiment de Dragons* began testing this structure at Camp Mourmelon in eastern France in September. If, for whatever reason, the 80-tank regiment is not adopted for the *AMX-Leclerc*, the "fallback" organization could be a 52-tank regiment consisting of four 13-tank squadrons. Regardless of the decision concerning the regiment's organization, a squadron's structure will change,

for a *Leclerc* squadron will have three platoons, rather than the current four.

### Armor Cavalry's Changing Role

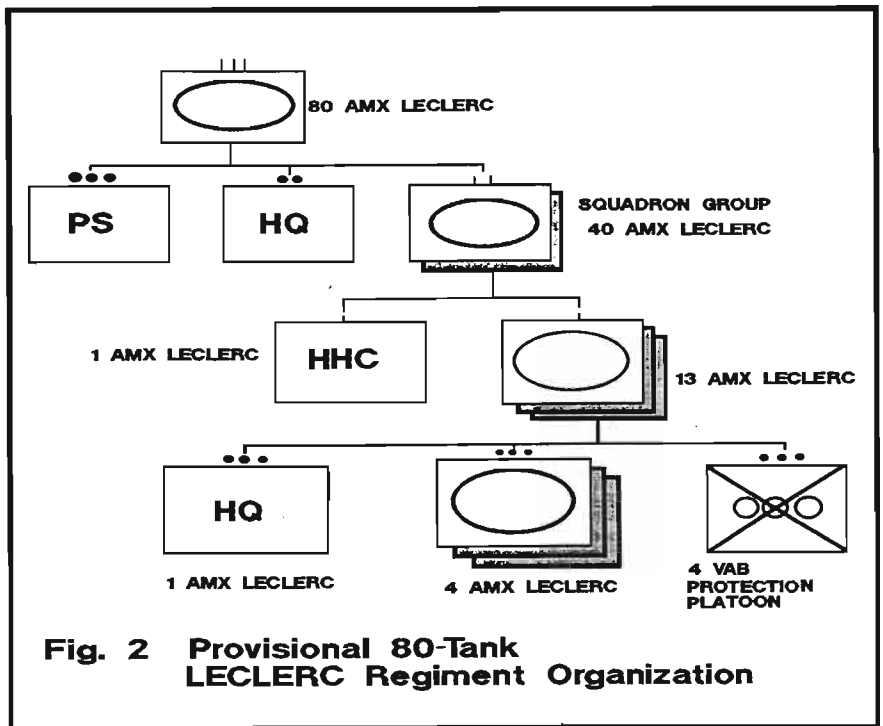
French tankers are not the only members of the French Armor Corps who are dealing with change. In 1988-89, the Armor and Cavalry Inspector General directed a re-evaluation of armor cavalry doctrine. This re-evaluation originated in part from the anticipation that French forces would be engaged in a European conflict in a second-echelon role, therefore giving a French corps commander access to all allied intelligence-gathering systems. The commander would also profit from information gathered by the ground and airborne sensors that the French Army will field within the next decade, such as an airborne surveillance radar. The corps reconnaissance regiment would therefore not need to deploy 50 to 80 kilometers forward of the main body to gain contact and to inform the corps commander of the enemy's location, strength, and axes of advance.

Furthermore, the AMX-10RC, though armed with a 105-mm cannon capable of firing an APFSDS round, is not suited well for head-to-head combat with the latest Soviet or Warsaw Pact tanks. Thus, the French Army is no longer convinced that an enemy so equipped could be countered by French armor cavalry units alone. Nevertheless, the agility and firepower of a unit formed from armor cavalry elements and the corps attack helicopter regiment make it able to counter an airborne or airmobile threat posed along a flank or in the corps rear area by BMDs, BMPs, or older Warsaw Pact tanks. Therefore, it is more and more unlikely that a corps reconnaissance regiment would

deploy its squadrons far to the front of the corps main body to perform classic ground reconnaissance missions. French doctrine has already changed to reflect reconnaissance by fire as a supplement to information gathered by ground-based and airborne sensors, and the role of the armor cavalry will be to prepare engagements, maintain contact between allied units, intervene to counter airborne threats to rear areas, temporarily block a penetration, or counterattack by fire. At the same time, the units will continue to gather information for the corps commander.

Armor cavalry's name reflects its changing battlefield role. For many years, it was known as "CLB" - *Cavalerie Legere Blindee*, or Light Armor Cavalry. As their role evolved, units became known as RCM - *Roue, Canon, Missile*, or "Wheel, Cannon, Missile" regiments, light armor units have yet to receive an official name, but the term *Regiments de "RSI" - Reconnaissance, Surete, et Intervention*, or "Reconnaissance, Security, and Intervention" Regiments is frequently used to describe the role of these organizations.

Light armor units are an integral part of France's rapid deployment force, the FAR. Units such as the *1er Regiment Etranger de Cavalerie* (1st Foreign Legion Cavalry Regiment), the *1er Regiment de Hussards Parachutistes* (1st Hussar Parachute Regiment), and the *1er Regiment d'Infanterie de Chars de Marine* (1st Marine Infantry Tank Regiment) have deployed to such countries as Gabon, the Central African Republic, and Chad as part of a task force combining armor, in-



fantry, artillery, and combat engineer units. Because there was no written doctrine for how a light armor unit should operate in such an environment, unit commanders adapted existing armor cavalry doctrine to their situations as best they could. Recognizing that this is a less-than-ideal solution to the problem, the Armor and Cavalry Studies and Experimentations Bureau is filling the doctrinal void for intervention armor units with a series of manuals describing how they fight as part of a combined arms task force that must intervene overseas.

Light armor units in the FAR have what is, in effect, a double mission. They perform many of the classic armor-cavalry missions, such as reconnaissance and surveillance, and have a direct-fire combat mission as part of the combined arms team. In many ways, these units perform the same missions as our regimental cavalry squadrons. The manuals describing how armor units function as part of a *groupement d'intervention* (intervention group, or task force) will be published

within the next year. Unit commanders will no longer have to adapt doctrine written for the corps reconnaissance regiment or the armor regiment of a motorized infantry division to an intervention mission as part of a combined arms task force.

### Conclusion

What does the future hold for the French Armor and Cavalry? Change. Unit structure will change. How tank regiments fight will evolve. Commanders will have to be adept at using an automated command and control system. Tanks will have more firepower and be faster, more sophisticated, and more survivable. Crews will be smaller. Cavalry will do more than just reconnaissance. Light armor, rapid deployment units will have new doctrine to absorb and apply.

The forecast holds change, but not upheaval, for French cavalrymen, for they are already preparing for the future. By the time the first serial *AMX-Leclerc* leaves the assembly line in late 1991, decisions



This French Army VAB 4x4 is a 120-mm towed mortar crew vehicle.

concerning the regimental organization will have long since been made. How a *Leclerc*-equipped unit will fight will not be defined completely, but the draft doctrine will exist to use as a starting point.

A system for training individual crewmen and units will be in place at the Armor and Cavalry Instruction Center well before the first squadron reports for new equipment training. Tanks, though more powerful, sophisticated, and survivable, are still a known quantity in many ways. Getting the optimum individual and unit performance from a given weapon system is a never ending effort for any army, whether the system is the M1A2 Abrams or the *AMX-Leclerc*.

Cavalry, whether French or American, has always prided itself on its adaptability and its acceptance of new challenges, and the

phrase "change of mission" is so common to cavalymen that it is almost a cliché. French cavalry regiments are already applying doctrine that was little more than a concept a year ago.

Whether known as *CLB*, *RCM*, or *RSI* makes little difference to these units, for they have never stopped looking for better ways to accomplish their mission.

The spirit that rode with the units at Austerlitz is far from dead. Firmly rooted in their proud history and heritage, the descendants of Ney, Lyautey, and Leclerc are prepared to meet today and tomorrow's challenge with *esprit* and *elan*. *Par St. Georges, Vive la Cavalerie!*"

#### Notes

<sup>1</sup>Gerard Turbe, "France's Light Armoured Cavalry: A Radical Change in Operational Concept." *International Defense Review*, December 1989.

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# Combat Service Support in the \_\_\_\_\_ Task Force Scout Platoon

by Captain Timothy Flanagan



*"All Yankee elements, this is Yankee 25, execute phase CHARLIE, out." The scout platoon leader looked down at his map. The five Bradleys left would soon head toward the battalion's flank. It had been a long night and an even longer two weeks, but his platoon had performed well. The battalion commander was pleased with the intelligence gathering of the platoon. Now it was time to observe the only probable mechanized counterattack route onto the task force's newly acquired position. Once again, the radio crackled to life. This time it was the Bravo section leader. His wingman had no fuel, and he was running on fumes. The lieutenant shook his head and swore, "Why is this happening?" Yesterday, one of his men "died" because of poor medical evacuation procedures. Today, the problem centered on a lack of fuel. Resupply of Class LX parts also seemed to be a constant nightmare.*

*Although successful so far, the scout was filled with an empty feeling inside. "We accomplish the mission, but we lose men and equipment for stupid reasons," he muttered. He thought back to the numerous training exercises through which he had taken his platoon. In the small area in which they trained at home station, the platoon sergeant never had problems acquiring their supplies.*

*Finally, the vehicle lurched to a halt on the new screen line. Unfortunately, his vehicle was not the first one there. Immediately the platoon leader*

*realized that the platoon of T-64s rolling up his flank had come through the sector that Bravo section should have been covering. The last uttering out of his mouth was the battalion commander's call sign shouted into a hand mike.*

The lieutenant reached over and hit the snooze button on his alarm clock. "Damn, why can't I dream about girls like everybody else," he thought. As he rolled out of bed and stumbled into the bathroom, he began to think about his nightmare. Maybe his platoon sergeant was right. Although certainly not as glamorous as planning patrols, providing for combat service support operations for the platoon is vital if they are to survive in a combat environment.

FMs 17-98 and 71-2 combined with a little common sense, offer several solutions to our nightmare-plagued platoon leader. Whether or not the task force scout platoon contains Bradleys, an M113/901 mix, or the new HMMWV configuration, its mission and organization usually cause headaches for the task force's logistics planners.

The scout platoon has no organic CSS assets. It usually operates to the front of the task force along a screen line instead of occupying part of the task force assembly area. Scouts live by the motto, "First out, last in." Additionally, for security reasons, most units conduct their resupply operations during hours of

darkness; this is when the scout platoon does the majority of its work. All of these conditions and obligations make it extremely difficult to conduct normal LOGPAC operations. Notice, I said difficult. I did not use the word impossible.

The first method of CSS to the scout platoon is to make the scouts responsible for their own supply functions. The platoon sergeant would coordinate for the platoon's needs, and be responsible to ensure that the LOGPAC is met, distributed, and returned to the Logistics Release Point (LRP). The disadvantages to this method are obvious. The platoon sergeant is so involved in the resupply process that the platoon would have to operate one vehicle short for extended periods of time (FM 17-98, p. 7-2).

The second method involves piggybacking on one of the company/team CSS assets in the task force. Naturally, the LOGPAC that the company/team picks up must have been coordinated in advance. Adequate supplies of all classes must be assured. The scout platoon must have priority when it arrives at the LOGPAC location. This way it can continue its mission without delay. The main advantages of this method are that the scout platoon sergeant does not have to act like a unit first sergeant and accompany the LOGPAC, and the support platoon does not have to prepare a separate supply package. The main disadvantage to this plan is that the

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scouts must conduct resupply operations at the same time as the rest of the task force. This may not be feasible during some missions (FM 71-2, p. 7-17).

The last method I will examine, and one that was extremely successful for a unit from Fort Polk during a 1988 National Training Center rotation, is to dedicate a LOGPAC to the scout platoon. The HHC first sergeant controls this element. This is a time-consuming process for the HHC first sergeant. However, the alternatives leave much to be desired. By establishing a dedicated LOGPAC with the HHC first sergeant in charge, the scouts will have every opportunity to conduct resupply operations (FM 17-98, p. 7-2).

The first step in this process is a habitual working relationship with the battalion's S2 section. The distance that the scout platoon normally operates from the rest of the task force makes reporting to the Combat Trains Command Post (CTCP) via the admin/log net virtually impossible. It is much easier and practical for the scout platoon sergeant to report the platoon's supply needs to the S2 section. The S2 section then relays that information to the CTCP. If the S2, after conferring with the S3, realizes the scouts may need additional supplies for future operations (i.e. smokepots, chemlights, breaching assets, etc.) he can order those materials sent with the next scout LOGPAC.

The platoon leader and the platoon sergeant must decide when is the best time to resupply. Naturally, the S2, and particularly the S3, will have to approve that decision. It is not the S4 who decides when

and where the scouts will be resupplied. If the battalion is in a transition to an offensive operation, it is imperative that the scouts get resupplied as quickly as possible. This requires that the LOGPAC is ready to go as soon as the area in which the scouts are operating is secure.

The scout's LOGPAC cannot sit in the field trains with the rest of the task force's CSS assets. It must be as far forward as is safely possible. One location that works well is the CTCP. When the tactical situation permits, the first sergeant can go forward and conduct resupply operations.

Resupply during the defense presents several challenges. Positions may be compromised as vehicles pull off the screen line to resupply during daylight hours. Dismounted observation posts can help alleviate this concern. If CSS operations are attempted during hours of darkness, the platoon reduces its readiness at the exact time enemy reconnaissance elements are most likely to operate. By shifting position forward of the task force's defenses during periods of limited visibility, the platoon increases the chance of becoming the victim of fratricide. Unless the vehicles become low on class III, avoid resupply during dedicated defensive operations.

Before the arrival of the first sergeant to the LOGPAC location, the scout platoon sergeant must ensure that the area is secure. An area for class III operations must also be identified. The conduct of the LOGPAC is similar to that run by company/teams, but there are several areas that should receive special emphasis. In addition to topping off all

vehicles as frequently as possible, the scouts should also carry additional class III.

Ammunition requirements may also pose problems. If the first sergeant has a HMMWV instead of a truck, the resupply of TOW missiles, large amounts of machine gun ammunition, and replacement Stinger missiles may be hampered due to lack of space.

To obtain the proper balance between the extra water cans, spare ammunition, replacement parts, and food, is difficult. Allocate additional assets for large loads or schedule a second resupply. Do not forget to plan for personal demand items and medical material.

The distance between the scout platoon and the UMCP precludes scout vehicles from returning to the UMCP for minor repairs. This coupled with the absence of maintenance personnel in the platoon requires the vehicle crew to be proficient in vehicle preventive maintenance. If possible, attach a mechanic to the platoon to fix and diagnose problems. Another solution is to have a mechanic come forward with the first sergeant at LOGPAC time. Once PMCS is complete, the LOGPAC can carry the 2404s to the BMO. The implementation of the HMMWV scout platoon should ease the mechanical burden on the scouts. HMMWVs are generally more reliable than tracked vehicles.

The most difficult aspect of CSS for the scout platoon is medical treatment and evacuation of wounded soldiers. The first step in this process is disease prevention. Each squad leader ensures that his





soldiers eat properly and drink enough fluids. Soldiers must bathe and change clothes regularly. Pay particular care to those soldiers who patrol frequently. Trench foot, immersion foot, and frostbite can neutralize soldiers as quickly as an AK-47.

The second step in medical CSS is to train combat lifesavers. Each vehicle should have a scout trained as a combat lifesaver. With the equipment and supplies available in his medical bag, he can begin to stabilize the soldier and treat initial injuries. Hopefully, he can prevent the wounded soldier from going into shock.

The next level is the attachment of a medic to the platoon sergeant's track. The distance between the scout platoon and nearest aid station necessitates the assignment of a 94B to the platoon. This attachment should be habitual to inspire the confidence of the scouts in "their" medic. The medic's extensive training is a necessity and not a luxury in a task force scout platoon. In addition to conducting routine sick call and administering first aid, he is the advisor to the platoon leader and

platoon sergeant on evacuation of a wounded soldier.

A plan for evacuation must exist before mission execution. The logistical planners in the battalion must be aware not only of the main maneuver unit's portion of the operation, but also of the scouts' operations. They must pay close attention to the times the scouts will conduct missions so they can have medical personnel standing by if needed.

Given the distance a scout platoon can operate in front of the task force, it is unreasonable to expect an ambulance to come completely forward to evacuate a scout casualty. The actual conduct of the evacuation varies, depending on what the task and the scout platoon are doing. If possible, the platoon sergeant, with a medic on his vehicle, should extract the wounded soldier and move toward friendly lines. If conducting an offensive operation, and the rest of the task force has already crossed the LD/LC, the platoon sergeant has two options. The first one is to head to the nearest ambulance exchange point or pre-designated point to drop off



his casualty. The second option is to head to the nearest aid station. This situation requires an on-the-spot decision by the platoon sergeant. If this is an attack, but the task force has not crossed the LD/LC, or the task force is defending, evacuate the casualty to a predetermined point at which an ambulance is waiting. All of this requires rehearsals by the medical ambulance crews and the scout platoon. Once again, the task force S2 must inform the rest of the task force that friendly elements are reentering the lines.

This is not a glamorous subject. We seldom discuss it. To figure out the best way to gather the information the battalion commander needs is, and should be, the number one priority of any scout platoon leader. However, if the assets to accomplish that mission are not available because of a failure to plan proper combat service support, all the training and wargaming in the world will not have any effect.

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# Unit Status Reporting: A Broken System?

by The Directorate of Total Armor Force Readiness

## Division G-3, 23d AD:

*"I can't believe this tasking," said the G-3, "how are we supposed to have our own tank battalions perform organizational maintenance when we have orders to detach a battalion maintenance platoon for duty in southwest Asia?"*

*"I don't know, sir," said the plans officer. "I guess somebody over there is in bad shape. To compound our problem, we've got only one battalion that can support the requirement with the equipment requested. Our latest status report shows 1-10 Armor is the only unit in the division C-1 for equipment on hand and equipment readiness."*

*"Well, I guess it's them. Go ahead and make it happen."*

## Battalion HQ, 1-10 Armor:

*"Do you see this tasking?" the battalion commander gasped. "Three HMMWVs, 12 deuce-and-a-halves, two five-tons and the five-ton wrecker, the HEMMT wrecker, seven 88s, and four 113s! We can't do this at all. We are short or non-operable on every single one of these items except for the five-tons."<sup>1</sup>*

*"How are we going to explain this to division sir?" asked the S3. "They are going to want to know why we didn't say something sooner."*

*"Why should we have said something, almost all of that equipment is ERC-B. Besides, our tanks can get where they are going and kill the bad guys. That seems more important to me."*

Can this unit perform its combat mission? The obvious answer is no. However, any battalion in the Army could get caught in the same situation as 1-10 Armor. Loopholes that exist in the Unit Status Report (USR) system allow the above situation to exist. Those loopholes allow a unit to cover its problems with a thick smokescreen.

At the same time, the commander can go beyond the mere surface content of the report and into much greater depth to provide the true status of his unit. The strength of the USR exists in the flexibility it provides to the commander to report and highlight unit strengths and weaknesses. The system will not work, however, if a commander's only concern is to paint a rosy picture of his unit, to check another block and move on to the next milestone. To make the system work, it must be used wisely.

The purpose of the USR is to provide a single document to all command levels that reflects a unit's status in selected areas at a point in time.<sup>2</sup> The report is designed to measure unit readiness in selected areas of personnel, equipment, and training resources. The USR is not intended to be an all inclusive reflection of a unit's complete readiness or status. It is intended to identify problem areas, which can be analyzed on a broader level by the appropriate support chain using its own documentation channels (i.e., a personnel issue could be examined in greater depth using SIDPERS).

All units are not expected to report the highest level of unit

status possible (C-1). Each unit is expected to be at the highest level possible after considering each unit's contingency requirements and the resources available to the unit. Commanders at higher levels are expected to use the status report to realign or requisition resources, within their ability, to allow subordinate units to maximize their status.<sup>3</sup> For example, it may be perfectly acceptable for a Reserve Component unit to have a rating of C-3, when its only contingency is to reinforce Europe at D+90. The assumption is that this unit will have its shortcomings fixed before deployment.

Many users and compilers of the USR state that the system is broken! The system does have shortcomings, but it is workable. The system does not expect perfection, which is a misconception held by some users of the report. Another problem of the system is that AR 220-1, the regulatory guide to USR, is a tedious document. The Department of the Army Inspector General has recommended a rewrite of this document.<sup>4</sup> In the meantime, a careful reading of the AR, with good questions to a subject matter expert (higher headquarters, someone who has prepared it before, etc.) should clear any problems of understanding with the regulation.

The biggest problems with the USR system are the numerous loopholes, which can be used to conceal problems, or reveal problems that are not required for submission (i.e. comments on equipment which is ERC B or C). In the case of the

USR, it is best to err on the side of too much information, so that all shortcomings are reported.

Each of the major areas of the report has its own peculiar loophole. Though commonly used, they only serve as a hindrance to solving a unit's problems. In the personnel area, for example, some of the largest deviations occur in the MOS qualified area. One of the easiest ways to lay a good smokescreen on this portion of the report is to count an MTOE-required slot as being filled by an MOS-qualified person only because a warm body occupies the position. An example of this would be to say an MOS requirement for an intelligence analyst is being filled and met by an armor crewman working in the position. In fact, the unit should report an MOS shortage for an intel analyst.

The equipment areas show the most common reporting abuses. The non-reportable line (NRLIN) system is the biggest culprit. This system, in a one-two punch, classifies some equipment as ERC B or C, which means that a unit does not have to report it, and it allows some ERC A equipment to go unreported because a MACOM has determined that the item in question should not be reported for any of a number of reasons (most commonly because a piece of equipment required on an MTOE has not been fielded). Because of the NRLIN system, large quantities of equipment can go unnoticed on the USR because there is no requirement to report these items (all of a tank battalion's recovery assets, for example, are ERC B).

The large number of ERC A items that a unit may have (most tank battalions have approximately 80-90 ERC A lines) will also allow a unit with a small number of lines that are C-4 (lowest level of readiness) to have those C-4 lines go unnoticed

because the unit is C-1 statistically. There is no specific mention of an individual line problem except on the appropriate comment card, and an "accidental" omission of that line from the card would keep the problem from being raised at all.

Equipment readiness can also fit through a loophole with a rather simple paperwork shuffle. In many MTOEs similar items of equipment have different ERC classifications (i.e. three of an item may be ERC A and two of the same item may be ERC B). If one of the pieces of equipment that by MTOE is ERC A becomes non-mission capable, maintenance personnel could report that one of the ERC B items is down and avoid making it a USR issue altogether. Similarly, if two major components are down for different sub-components (i.e. a tank down for a radio and another for a machinegun), those same maintenance people could report that one major component is down for two sub-components.

The last and easiest area to abuse through loopholes is training. This area is easy to abuse because it has a very loose statistical base, and the ratings assigned in this area are subjective judgments. It would be easy for a commander to equivocate in the training area and get lost in shades of gray instead of making a clear distinction.

The last several paragraphs have demonstrated not how to beat the system, but have illustrated some ways that the system is abused, sometimes quite inadvertently. The learning point is that the USR requires careful, thoughtful preparation.

There is one final, separate area that may cause a lack of communication in the USR system, especially above the MACOM level. Many MACOMs or subordinate headquarters require supplements to the

USR to serve as back-up documentation to the actual DA Form 2715-R (Unit Status Report). These supplements range from commanders' cover letters to a monthly DA Form 2406 (Materiel Condition Status Report). If vital explanatory information is included in the supplementary material, but not the 2715 itself, that vital information will never reach levels above the MACOM. The supplements will be stripped away at the MACOM for electronic transmission of the 2715 data. The key is to remember if there is something important to say, say it on the 2715.

Now, the question is probably coming, "How do I make USR work for me?" The simplest way to answer that question is to tell everything. The best way that a commander can accurately portray his unit's true status is through written comments on the supplementary cards. The statistics of the two cover pages almost never hit the target and fully explain a unit's problems.

For that reason, it is imperative that the commander spell out in the comments sections exactly what is wrong and what needs to be done to fix the problem. That way a USR reader has no doubt where a unit stands and what needs to be done to resolve identified problem areas.

As an illustration of "telling it all," let's examine some examples. As a base assumption, we will assume all areas are statistically C-1, and we will use the case of 1-10 Armor.

#### **Old 1-10 AR READY Card-Comments**

*This unit is rated C1. Some ERC B equip shortages are of concern but under control.*

#### **Old 1-10 AR ESRAT/ERRAT Comments**

*None*

### New 1-10 AR REASN Card-Comments

*I have downgraded to C2. Shortage of M35A2 trucks and NMC of M88A1 recovery vehicles keep Maint Plt from performing mission. These items ERC B but keep this BN from sustaining operations. Require immediate fill of required trucks and parts issue for NMC M88A1.*

### New 1-10 AR ESRAT/ERRAT Comments

*ESRAT: Shortage of ERC B M35A2 trucks critically hampers BN Maint Plt. Require immediate fill of trucks to perform maint mission.*

*ERRAT: Slow push of engines, road wheels and boom cables for ERC B M88A1 recovery vehicles prevents BN from being capable of performing any recovery. Need immediate resupply of these items to accomplish mission.*

And what would the conversation at Division G-3 have sounded like had they seen the new cards? Let's listen: "Well Bob, how about tagging 1-10 AR for this tasking to slice a maintenance platoon to southwest Asia," said the G-3.

"Sir, I don't see how we can have them do the job right now. They've selectively downgraded to C-2 because some of their critical maintenance equipment is either short or broken," said the plans officer.

"Okay, we need to get the G-4 on getting their equipment problems fixed ASAP. We've got a little flexibility time on that tasking, and if we cannot get them fixed by then, we'll look at using 1-11 AR or 1-14 AR instead.

"Sounds like the problem is going to get fixed and nobody's head is going to roll.

The USR system can work. It can be tedious and it has its shortcomings, but for right now, it is the only system that we have. Users of the USR system at all levels need to remember that ratings on the USR should not equate to someone's ability to do the job, but should be used as an indicator of legitimate problems with which a unit needs help to perform its mission.

Commanders and USR preparers need to use the comments portions of supplementary cards freely to fully explain any questionable problem areas. It is only with a complete, accurate assessment that USR auditors can help subordinate units. The system isn't broken, it just needs some understanding and careful use.

### Notes

<sup>1</sup>FKSM 71-8 Close Combat Heavy (CCH) Maneuver Organizations, Ft. Knox, Ky., February 1989, C-14 - C-16.

<sup>2</sup>AR 220-1, Unit Status Reporting, Washington, D.C., 30 August 1988, p. 3.

<sup>3</sup>Ibid.

<sup>4</sup>We would commend to a USR user's reading: Department of the Army Inspector General Special Inspection Report: Readiness Reporting Systems (R2S), July 1989. It is an FOUO report, which you may be able to obtain from your local IG.

The Directorate of Total Armor Force Readiness (DTAFR) audits USR reports for all Active and Reserve Component Armor/Cavalry units. We will assist in the solution of problems you have listed in your report. You can reach us at AV 464-TANK (24 hour recording) or at AV 464-7752/7114 (commercial prefix is (502) 624-).

### Major Charles E. Griffiths, 1933-1990

The staffs of ARMOR and the United States Armor Association announce with deep regret and sympathy the death of Major (Ret.) Charles E. Griffiths, 57, secretary-treasurer of the U.S. Armor Association, on December 6, 1990.

After enlisting in 1950, he served with the 7th ID in Japan and participated in the Inchon landing in Korea. He later served in the Panama Canal Zone, with the 3d Infantry Honor Guard at Fort Myer, Va., and he was NCOIC at Blair House, the Presidential Guest house.

He was commissioned in Infantry through OCS in 1960. Later, at Fort Knox, he commanded a Leadership Training Company for officers from newly emerging African nations.

In Vietnam, where he survived two helicopter crashes, Griffiths commanded a company of the 196th Light Infantry Brigade and served as S3 Air. On a second tour, he was senior advisory group officer to the An Loc district. His decorations include the Bronze Star (2d OLC), Purple Heart (1st OLC), Air Medal, and the Army Commendation Medal.

Griffiths retired from active duty in 1970. In 1974, he began a 16-year career as Secretary-Treasurer of the U.S. Armor Association, running its day-to-day business. Services were on 14 December at the Main Post Chapel, Fort Knox, followed by burial in Radcliff.

Though his last year was dominated by pain and the suffering brought on by chemotherapy, he never complained or despaired in his fate. He only showed the indomitable spirit that remains his legacy.

He leaves behind his wife, Mary; his son, Charles II, his daughter, Julianne; and many, many comrades in arms. The Armor Force will miss him.

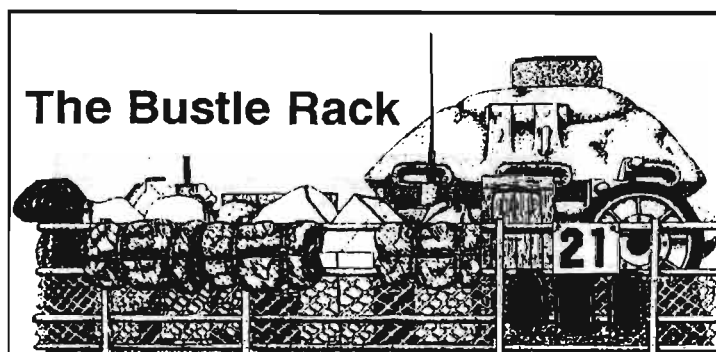
## Excellence in Armor (EIA) - MOI/Video Distributed

The Excellence in Armor - Memorandum of Instruction (EIA-MOI) was distributed worldwide to all active and reserve component units. The EIA-MOI provides detailed instructions and information on the EIA Program and should make running a unit-level program easier. If your

battalion or squadron has not received a copy of the EIA-MOI, please notify the Directorate of Total Armor Force Readiness at Fort Knox.

Production of the EIA video is complete, and distribution to learning centers

worldwide is underway. Active Component units should check with their learning centers, and Reserve Component units should check with their Readiness Group or Army HQs for this valuable EIA informational and teaching tool. The approximate running time of the EIA video is



## Combined Arms Tactical Training Center

The Combined Arms Tactical Training Center (CATTCC) is an innovative use of simulations technology to enhance and augment the ability to conduct mounted tactical training. CATTCC uses Simulations Networking (SIMNET) equipment to build a fully interactive combined arms battlefield. This battlefield becomes a major training area for multi-echelon training exercises. Training at CATTCC focuses on the tasks of command and control, tactical movement, and the synchronization of direct and indirect fires, up to the battalion level.

Currently, CATTCC provides a battalion the following capabilities:

- 41 M1 tank simulators
- 16 Bradley Fighting Vehicle simulators
- 2 Battalion TOCs and 2 battalion ALOCs with personal computer work stations to control combat support and combat service support operations.
- 1 Brigade TOC
- 4 Semiautomated Forces (SAFOR) stations. Each station controls up to 60 vehicles.
- 1 Observer/controller "Stealth" station

This equipment gives the commander a wide range of training options. He can:

- Practice battle drills, conduct tank tactical tables, and conduct situational training exercises (STX) for a single collective task or related tasks and drills.

- Conduct Command Field Exercises (CFX), or Fire Coordination Exercises using both manned simulators and SAFOR.

- Exercise up to a tank-heavy battalion task force in manned simulators against a SAFOR enemy.

- Exercise a "pure" tank battalion or a tank-heavy task force in a CFX. Two battalions can execute a CFX controlled by a brigade TOC.

- Conduct up to company level force-on-force exercises in manned simulators for tank and mechanized infantry companies and cavalry troops. In the force-on-force exercises, each force will appear to the other as "enemy" vehicles (T-72 tanks and BMP-1 IFVs) while appearing as friendly vehicles to themselves.

CATTCC has vast potential as a task force training tool. The facility permits the unit to practice collective mounted combat skills in a stressful environment and conduct in-depth after action reviews. Although CATTCC is a part-task trainer, a user's guide is available which describes the system and the tasks best suited for training at CATTCC. The unit develops its own exercises based on its METL, then conducts the training. These exercises may be repeated or moved to different terrain with little problem.

Additionally, there is a videotape being made on CATTCC. It will discuss the facility and how to schedule its use. It will be available from local TASC facilities in FY 91.

In the near future, the Armor Center will provide other features to enhance training at CATTCC:

- Observer/controller teams for up to the battalion/task force level. For battalion exercises, this will only be available to a single battalion in a CFX mode.
- An improved AAR classroom facility.
- Desert terrain data base.

CATTCC is not designed to be a substitute for field training, but a tool to maximize training opportunities, especially when resources are limited. Training at CATTCC can prepare a unit to get the maximum benefits from scheduled field training exercises by providing a flexible training system to the unit before deployment and as a sustainment training tool.

The 12th Cavalry Regiment operates CATTCC as part of its mission to support the Armor School. For more information on the use of this facility as a unit trainer, contact the Chief, CATTCC at Defense Switch Network (DSN) 464-4157/4257, or commercial (502) 624-4157/4257.



23 minutes. The EIA video is a great visual aid that can be used for officer or noncommissioned officer professional development classes, platoon classes, or company/troop classes. Take advantage of what the video offers.

There is no requirement for specialized unit-level EIA training; however, proper use of EIA soldiers could enhance the unit's performance and combat effectiveness. EIA soldiers can assist unit master gunners, teach platoon sergeant or platoon-level classes, or can be used as primary trainers for UCOFT and individual soldier skills. The only requirements for a unit-level EIA Program is the establishment of a unit roster listing EIA soldiers; screening soldiers' performance to ensure they meet or maintain the EIA standards; and setting up document formats to ease enrollments, disenrollments, waivers, and Level II testing.

The current SQT standard for EIA enrollment is still in effect. All units will be notified of changes to the EIA enrollment standards as the Army phases out the SQT and introduces the SDT. If you need additional information on the EIA Program, contact the Directorate of Total Armor Force Readiness - Personnel Proponency Division, Fort Knox, Ky. 40121-5000, DSN 464-5155/3188 or commercial (502) 624-5155/3188. The Excellence in Armor Program - A Total Armor Force Program.

### **Military Motorcycle Training**

As proponent for military motorcycle (MILMO) training, the Armor School is conducting task analysis and developing POIs for MILMO operators. We are trying to obtain information on all aspects of MILMO operation - safety, maintenance, and especially tactics, techniques, and procedures. If you have any training materials, please forward copies to: Commandant, USAARMS, ATTN: ATSB-TDT-MILMO, Ft. Knox, Ky. 40121.

### **TC<sup>3</sup>/SC<sup>3</sup>: Notes for Incoming Students**

Incoming students for the M1 Tank Commander's Certification and Scout Commander's Certification Courses have been confused on where to report. Students for both courses should report to Headquarters, 5th Squadron, 12th Cavalry, Bldg 1467A, Third Ave. During normal duty hours, students should report to the

Personnel Actions Center. After duty hours, students will report to the SDO.

Incoming students are urged to call the Unaccompanied Personnel Housing Office in order to reserve billeting. The phone numbers are Defense System Network (formerly AUTOVON) 464-3138/3943, commercial (502) 624-3138/3943. Incoming students should also be aware that transportation is not provided from the BOQ/BEQ to the training sites. Those students arriving at Fort Knox without POVs should arrange for the proper authorization for either a rental car or cab fare on their DD Form 1610, "Request for Authorization for TDY Travel of DOD Personnel."

Further information can be obtained from S3, 5th Squadron, 12th Cavalry, DSN 464-7334/6258 or commercial (502) 624-7334/6258.

### **Crews Score 1,000 Points at Grafenwoehr**

Congratulations to the following 3d Armored Division crews for scoring a perfect 1,000 on Tank Table VIII at Grafenwoehr in October:

C23, Co. C, 3d Bn, 8th Cav  
C14, Co. C, 2d Bn, 67th Armor  
HQ85, HHC, 4th Bn, 8th Cav  
A66, Co. A, 4th Bn, 7th Cav  
A26, Co. A, 4th Bn, 7th Cav  
B22, Co. B, 4th Bn, 7th Cav  
B23, Co. B, 4th Bn, 7th Cav

### **Reunions**

The 214th Annual Washington area Armor Ball will be held Saturday, 9 February 1991, at the Bolling Air Force Base Officers' Club, Washington, D.C. Master of ceremonies will be MG Thomas C. Foley, Commander, U.S. Army Armor Center and Fort Knox.

For further information, please contact: CPT Brad May, U.S. Total Army PERSCOM, ATTN: TAPC-OPE-R, 200 Stovall Street, Alexandria, Va. 22332-0414 (phone: commercial 703-325-9696 or DSN 221-9696).

### **1st Cavalry Division**

The 44th annual 1st Cavalry Division reunion will be held 3-7 July 1991 at the Killeen Sheraton Hotel in Killeen, Tex. For more information contact Bob Litle, 302

North Main Street, Copperas Cove, Tex. 76522 (phone: 800-234-9313).

### **Big Red One**

The Society of the First Division (Big Red One), which is composed of men who served in World War I, World War II, Vietnam, and in peacetime, will hold its 73d annual reunion from 10-14 July 1991 in San Jose, Calif.

For more information, please contact Arthur L. Chaitt, Executive Director, 5 Montgomery Avenue, Philadelphia, Penn. 19118, (phone 215-836-4841).

## **New Sheridan Certification Course**

Beginning early in 1991, the U.S. Army Armor School at Fort Knox, Ky., will teach a one-week M551 Sheridan course. The course will focus on gunnery and maintenance tasks. The course objective is to familiarize the student with critical warfighting skills necessary for replacements to 3-73 Armor.

The course is targeted at Active or Reserve Component officers, NCOs, and enlisted soldiers on Department of the Army assignment instructions to an M551 unit who have been assigned to non-tank duties or who have never been trained on the Sheridan.

The course will cover crew stations and duties, employment of gunnery skills, turret troubleshooting, crew maintenance, driving, and weapons.

The projected date for the first class is 4 February 1991. To minimize student waiting time, the school will conduct one class each month.

For more information contact CPT(P) Gold, Course Development Division, Directorate of Training and Doctrine, U.S. Army Armor School, ATTN: ATSB-TDC, Ft. Knox, Ky. 40121 (phone: DSN 464-5652/4415 or commercial (502)624-5652/4415).

Soldiers wanted to serve and work for this great leader. He was a legend in his own time, known for taking care of and loving his troopers. He had physical courage in abundance; however, his strongest point was that he possessed moral courage to a degree seldom found in our leaders, junior or senior. He was a rare leader, the most selfless of soldiers, absolutely loyal to our nation, Army, and to our magnificent soldiers.

Major General Joe Lutz has gone to OCS, as my command sergeant major would say, on the civilian streets. The civilian world's gain is the U.S. Army's loss. He is gone but not forgotten by the thousands of soldiers he touched in 35 years of great service to our nation.

THOMAS H. TAIT  
MG, Cavalry  
Ft. Lewis, Wash.

## Light Armored Force Debate

Dear Sir:

The article by LTC Thomas A. Bruno in the September-October issue of *ARMOR* is directly on target! The Mounted Combat Arm of Decision must move decisively now to ensure the critical role of armored forces into the next century. The discussions, debates, tests, and proposals currently under consideration for the light armor forces are not substantially different than those considered 10 years ago when I served as a second lieutenant in the 4-68th Armor, now 3-73d Armor at Fort Bragg. The same M551 Sheridans are still in service, awaiting long overdue replacement by a newer technology Armored Gun System. The low prioritization of the AGS, falling year after year below the funding cut line, has come home to haunt our branch and the rapidly deployable light forces. The recent deployments of the 3-73d Armor to Panama and Saudi Arabia validate LTC Bruno's comments and highlight the need for swift action to bring the light armored forces into alignment with changing global scenarios. In the Commander's Hatch of the same issue, MG Foley states that it is time to "lighten the force so that it is more deployable in a strategic sense." The call is out. Build, organize, and field the light armored force now!

FREDERICK C. HELLWIG  
CPT, Armor  
University of South Carolina  
Army ROTC  
Columbia, S.C.

## Armored Force Must Push for Light Tank

Dear Sir:

This letter is in response to the article in the September-October 1990 issue, "Armor Support in Low- to Mid-Intensity Conflict," by First Sergeant H.G. Beverage.

This brief but poignant article again surfaces the issue of the need for strategists, force developers, and research and development communities to focus on the development and fielding of a light armored tank, to replace or augment the existing M551A1 Sheridan. Using the current world situation as a "lesson learned," the need for a greater number of light tanks to deploy rapidly is obvious.

Had Saddam Hussein attacked the initial forces in Saudi Arabia, there is no doubt in my mind a total rout of those light forces would have resulted. Only a viable and substantial deterrent force composed largely of armored vehicles could deter such aggression. As it stands now, the U.S. Army is only capable of deploying one battalion of armored vehicles within 18 to 72 hours of an initial mobilization. Thus there is a need for a light rapidly deployed tank with the ability to defeat a medium tank threat.

The M551A1 is not a panacea for an Armored Force, or the Army for that matter, that expects to have the flexibility to meet and defeat any opponent in a low- to mid-intensity conflict. The M551A1 as a stop-gap measure is fine, but not the answer to the need for a light tank with the ability to defeat heavier armored vehicles.

The Armored Force must take the lead and be the proponent agent to push for funding and development of a light tank. We must also ensure that top leaders, both military and civilian, understand the possible grave consequences if this most needed weapon system is not integrated into the combined arms equation.

ROBERT F. CONWAY, JR.  
CPT, Armor  
FRG

## Brigade Recon Tried in CPX

Dear Sir:

The recent article in the September-October 1990 *ARMOR*, "Making a Case for Brigade Reconnaissance Elements" by

CPT Michael Kozlik, is cause for some positive comments among staff members of the 149th Brigade, 35th ID (M), KYARNG.

In a recent division-level CPX, our brigade had the opportunity to organize a brigade recon company "out-of-hide" and employ it in an offensive mission. The CPX was driven by the JESS system on European terrain, and involved our brigade making an attack against an enemy that had broken contact. The recon company advanced 15 to 20 kms ahead of the main body, and within the limitations of the simulation system, it gave adequate information on what lay ahead. The mission was an ideal one, because the battalions had no recon missions at their level, and the axis of advance was narrow for a brigade. The JESS system generated a special unit counter that represented our recon company — a unique organization composed of our three organic battalion scout platoons (J series MTOE), a combat engineer platoon, and an MP platoon.

CPT Kozlik did a good job of describing various organizations for the brigade recon company, and I want to offer our CPX example as yet another possibility. While we had to "rob" our battalions of their scout platoons, this would not be the case with our "ideal solution" for the recon company. It would be similarly equipped with M113s, but without M901s presently found in our battalion scout platoons. This is a realistic approach to a Reserve Component solution in fielding equipment for a new organization; it would be highly unlikely that division brigades in the ARNG force structure could expect HMMWVs or LAVs as brigade recon assets. In the absence of anti-armor capability, such a recon company should have the support capability to receive habitual attachment of a GSR section, MP platoon, or engineer platoon. This would give it the capability for a wider range of missions.

However it is organized or equipped, these considerations should come after the mission list is completed for the recon company. Although I basically agree with the time and space guidelines set out by CPT Kozlik, I think that the mission list considerations should start at the rear of the divisional armored cavalry squadron, or other covering force units. If we are going to borrow doctrinal recon frontages and depths from the Soviet example, then we might as well determine where the new recon company fits into the U.S. echelonment of recon and scout units. In

my example above, a lightly armed recon company was formed, because fighting for information was not one of its missions.

Finally, there is the possibility of filling this brigade recon void without fielding a new unit or changing the mission and equipment of existing units. This method involves creating a temporary unit, as was done in our computerized CPX model. This would involve adding company-level missions to the brigade S2 section and the battalion scout platoons. An assistant S2 officer becomes the "recon mission commander" by using the M113 assigned to the brigade HHC, plus a crew from the brigade TOC. This would become the recon company command vehicle. The recon "platoons" would come together by pulling two of the M113s from each battalion scout platoon, along with one each scout section leader as the NCOIC. The scout platoon leader and platoon sergeants remain with their battalions, keeping their M901s and one M113 for battalion-level scouting missions. The battalion missions would have to be reduced in scope, of course, for the same reason that the brigade commander orders his recon company to "fall in."

The new temporary unit, consisting of seven M113s, would operate for a limited time period, with very specific mission guidance. Its existence would be mission dependent, and also directly dependent upon the number and frequency of LOGPACs that could be provided by the brigade HHC.

I will conclude at this point, because it is not my purpose to offer even a potential solution to the existing need for divisional brigade recon assets. I have only stated some of the ideas that have been circulating around my own staff. It is hoped that future discussion of this topic, and more articles such as CPT Kozlik's piece, will lead to a solution very quickly.

OTIS W. FOX, JR.  
MAJ, Armor, KYARNG  
149th Bde S3,  
Louisville, Ky.

### **Put Priority on Maintenance, Not Ranger School**

Dear Sir:

I have just finished reading LTC Helena's article, "Welcome to Our Task

Force, Lieutenant!" and while I concur with most of the points made about leading and caring for one's soldiers, I must heartily disagree with the recommendation to attend Ranger School above all else.

In this day of limited resources (money) the young armor officer would be better utilized attending the Motor Officer Course. He must be thoroughly knowledgeable not only about tactics and doctrine, but in the maintenance of his "mount," as well.

Ranger training is fine, but let's get the priorities straight. Perhaps LTC Helena has spent too much time with the "snake-eaters" and not enough time in the motor pool. In my almost 12 years as an armor officer (four on active duty), I've had little occasion to meet armor officers who were tabbed; the few I have run into only remembered being tired and hungry.

The best armor officers were those who were maintenance oriented. If your vehicle doesn't work properly, you can't do your job, and you might as well join the light infantry. In that instance, of course, the Ranger tab fits right in.

The leadership and performance under stress training that LTC Helena demands his lieutenants receive should be coming from the company and battalion commanders, as well as from the new lieutenant's platoon sergeant.

EDWARD D. BOHNE  
CPT, Armor, USAR  
3/335, 85th Division (Tng)  
Alton, Ill.

### **Research Query**

Dear Sir:

I am writing seeking assistance with some research I am undertaking into the Australian Cruiser Tank, which was developed during World War Two.

I am particularly interested in finding out more about a certain Colonel Green of the United States Army, who visited Australia in early 1943 regarding the Cruiser Tank Project. I believe that he would not have been an Armor officer, but I am hoping that some of your readers may have an idea of where I can find more, and knowledge of the workings of the Lend

Lease authorities of the time, for whom Colonel Green was an agent.

The only other information which I have of Colonel Green is that he was an ordnance expert, perhaps of that corps; was a veteran of the Royal Tank Corps in World War One; and was born in Sydney, Australia.

RUSSELL MILES  
14 Black Street  
Watsonia VIC 3087  
Australia

### **Corrections**

Errors in sources, errors in interpreting sources, and typographical problems plagued our history of the 2d Armored Division in the July-August issue, notably on the succession of commanders who led the division during WWII. In response to several reader letters, we are publishing the following corrected chronology:

2d Armored Division  
WWII Commanders

MG Charles L. Scott - Jul 40-Jan 41  
MG George S. Patton - Jan 41-Feb 42  
MG Willis D. Crittenger - Feb 42-Jul 42  
MG Ernest N. Harmon - Aug 42-Apr 43  
MG Hugh J. Gaffey - May 43-Apr 44  
MG Edward H. Brooks - Apr 44-Sep 44  
MG Ernest N. Harmon - Sep 44-Jan 45  
MG Isaac D. White - Jan 45-May 45  
MG John H. Collier - May 45-Aug 45  
MG John M. Devine - Aug 45-VE-Day

COL Calvin Hosmer, now retired, also noted that the 2d Armored Division's 2d Squadron, 1st Cavalry, which went to Vietnam in mid-1967, joined the 4th ID, not the 1st Cav Division. COL Hosmer, who was the XO at the time, added, "We didn't get our air cavalry troop until the following year. Also, individuals who served with the squadron in Vietnam are authorized to wear the 2d Armored Division patch on the right shoulder..."

Harry F. Miller, a WWII Armor vet from Seattle, also wrote to correct a caption on page 31 of the September-October issue. The flamethrowing Sherman tank at the top of the page is an Army tank of the 713th Tank Battalion. "I realize that the Marines get an awful lot of publicity, but let's not give them any for free," writes Miller.

## New Single-Volume History Of World War II Focuses on the Big Picture

At right, General Eisenhower briefs paratroops prior to D-Day.



**Struggle for Survival: The History of the Second World War**, by R.A.C. Parker. Oxford University Press, New York. 1989. 328 pages.

R.A.C. Parker's little book is quite surprising — surprising because it is difficult to imagine a need for a single volume history of World War II. But, Parker delivers a first-class narrative account of the war which encompasses the decisive events of the war from the perspective of social, political, economic, and military factors. Parker avoids the typically British prejudice, which simply stated, asserts that British brains and American brawn won the war. Parker is even-handed in his treatment of American military and diplomatic efforts.

Those expecting an overview of the great campaigns of the war will be disappointed. Parker's analysis is from the strategic level, and generally he is more interested in the battlefield outcomes of diplomatic, economic, and strategic policy than in the battlefield events themselves. Parker is at his best when analyzing economic factors and decisions that decisively affected production. German and Allied decisions on tank production and German miscalculations assured, to a large extent, Allied superiority of numbers if not quality in tank production. Parker is equally effective in his analysis of the effects of German and Allied bombing campaigns on production and morale on the home fronts.

Finally, Parker reviews effectively the dynamics of the respective alliances. Clearly, the Western Allies and Russia, despite their differences, wove together a system that enabled them to fight with considerable unity of effort at the strategic level. The Axis powers, on the other hand, never reached anything like the consensus the Allies achieved. While this is no surprise, Mr. Parker does render the processes at work understandable.

Parker's work is an excellent start point for anyone seeking to understand the history of the second great world war and as such deserves a place on the shelves of professional soldiers. Upon reading Parker, soldiers will be able, with confidence, to turn to more narrow accounts of the war and so eventually reach a clear understanding of the military history of World War II.

LTC GREG FONTENOT  
Cdr, 2-34 Armor  
Ft. Riley, Kan.

**Hitler's Undercover War, The Nazi Espionage Invasion of the U.S.A.** by William Breuer. St. Martin's Press, New York. 1989. \$19.95. 368 pages.

Hitler's Undercover War tells the story of Germany's spy campaign against the United States during the 1920s through the Second World War. The author traces the early triumphs of German (later, Nazi) espionage in post-Great War America, a period he describes as a "spy's paradise," through the 1930s when a gradually awakening U.S.A. became more aware of the threat and its own precarious position in a turbulent world. J. Edgar Hoover and his FBI agents are the heroes of this piece as they uncover Nazi spy rings through careful investigation, bluffs, and occasionally, by accident.

Nazi spy activities during these years fell into three broad categories: collecting information, spreading disinformation, and conducting sabotage. Some of America's most important military contractors yielded up their secrets before an FBI counterintelligence counteroffensive, combined with better security, clamped down on German infiltrators. Disinformation activities, conducted mainly through the German-American Bund, promoted isolationist views in the U.S. by casting Hitler's Germany in a favorable light.

Sabotage efforts were not as effective as the Germans had hoped, however, thanks to the FBI and unreliable saboteurs.

FBI counterintelligence operations receive equal treatment in Breuer's book. The author describes the difficulties and ultimate triumphs of the special agents who tracked down the Nazi spies, some of whom were very discreet. Perhaps the most important FBI counterintelligence victory was the penetration of a Nazi communications station in New York. The G-men then used the radio station to identify German agents and distort their reports to Abwehr Headquarters (a major German spy agency) by passing on unclassified or erroneous information. This ruse eventually led to the arrest and conviction of about 30 German agents.

One theme in this book deserved more explicit treatment. Early in the spy invasion, Breuer observed that the FBI won a "turf battle" with the intelligence agencies of the Armed Forces over who should run American counterintelligence. The author does not detail these struggles, leaving the FBI's rise to pre-eminence in spy-catching a story that remains to be told.

Finally, one comes away from Hitler's Undercover War wondering just how much the Nazis got in return for all their espionage efforts. This is not to downplay the danger to America's secrets and industrial capacity, for Breuer certainly makes clear that the threat was real. One wonders, however, why Hitler's spies did not significantly alter the course of the war. Eventually, an effective counterintelligence campaign, coupled with increased security, helped limit the spies' abilities to collect information. But, why could German agents not provide information to help Hitler win his war? It may well be that the German conduct of the espionage war carried within it the seeds of its own destruction. Hitler's spy ap-

paratus, like his military, was a loose confederation of competing agencies, purposely underfunded, poorly staffed, and given poor quality personnel. The entire spy effort remained uncoordinated because of the Führer's fear of too much power aggregated in one organization.

Hitler's Undercover War is based on secondary sources supplemented by declassified FBI reports. Most of the incidents recounted in the book have been written about elsewhere. However, Breuer's crisp, curt writing style makes the narrative flow smoothly as he takes the reader on a fast-paced trip through the German underground in America. This book is rich in anecdotes and incidents, but short on analysis of the spy war between the U.S. and Nazi Germany. Anyone interested in the real world of espionage will enjoy reading this book.

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**Red Thrust** by Steven J. Zaloga.  
Presidio Press, Novato, Calif. \$18.95. 258 pages.

Is the Cold War in Europe over? If so, then why read a book on the most unlikely war? The author admits even he has a hard time coming up with a scenario that would spark a classic NATO vs. Warsaw Pact confrontation. But the point of the book was not to discuss the likelihood of World War III, but a vehicle used to give an appraisal of the current Soviet warfighting capabilities. Even though a classic American-Soviet confrontation seems unlikely, it is entirely possible that we will encounter Soviet weaponry, tactics, and advisors in future Third World conflicts.

Each chapter starts with an interwoven scenario of a central front battle and isolates a small part of the battlefield to emphasize a certain aspect of the combined arms concept. There is a chapter on motorized infantry, armor, artillery, attack helicopters, fighter aircraft, special forces, and chemical warfare. After the scenario, the author gives an in-depth analysis into that particular aspect from the Soviet perspective. The analysis includes training, development of hardware, and its application. For example, Mr. Zaloga explains that placing a ceiling on tank production costs of the T-80 tank directly

affects the design in regard to weight and size elements. It also impacts on the lack of durability of the tank for training purposes. The endurance of a tank in combat is not relevant, because it is likely to get hit and destroyed before it would "wear out." However, the T-80 is not designed to endure years of rigorous training hours, and therefore, severe constraints must be placed on the tank for training use.

The book is a good refresher on how the Soviets fight on the tactical level. It also gives insight into overall aspects of the Soviet military machine and how it would function in a high-intensity conflict.

The Soviet Union is fixated on World War II and, from that experience, continues to try to develop the ultimate blitzkrieg machine. The author points out that the next battlefield will be lethal, and determined in a matter of minutes. The author is able to describe, in succinct detail, the weaknesses of the Soviet military such as ethnic strife, no NCO Corps, lack of training time, and specific design problems in hardware. These inherent weaknesses are recognized by the Soviets and they realize how these problems reflect shortcomings in tactical prowess. Mr. Zaloga describes how they are continuing to pursue measures to compensate for them and what may be done in the future.

This work gives a good perspective, a current insight and a review into our old nemesis, the Soviet war machine. It is well-researched, with a good bibliography, and the story is lively reading in the vein of most techno-novels on the military.

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**Dust of the Saints** by Radek Sikorski, Paragon House, New York. 1990. \$19.95.

Several centuries ago, Khaja Ghaltan, a popular Herati Saint crossed the mountains of Afghanistan and looked at the city below and said "Behold the Dust of the Saints." The city of Herat has been called this by its inhabitants since then. This book covers the author's 102-day trip from Pakistan through war-torn Afghanistan of 1986 to the city of Herat.

The author, a Polish Catholic refugee in England, had considered going to Af-

ghanistan to fight Soviet oppression but decided he could do more for freedom by serving as a reporter and bringing news of the Afghan struggle to the Western press.

Traveling by truck, horse, motorcycle, donkey, and foot through various guerilla strongholds, Afghan militia-held areas, and past Soviet garrisons, the author describes his travels and his encounters with the Afghan freedom fighters. The descriptions of his various stops at times became tedious and boring, and I almost felt relieved when we finally got to Herat.

The author's main interest was to see what damage had been done to the city and what had happened in the 24 Hoot uprising. 24 Hoot was the beginning of the current struggle. Through interviews with several Afghans, the author gives a reasonably good accounting of the uprising.

This book was easy to read but really said very little about the overall conduct of the war itself. It does give an overview but little detail. It also provides a Christian with an insight to the Moslem religion and way of life. Perhaps the most impressive fact brought out by the author was that the introduction of the Stinger antiaircraft missile changed the balance of power in favor of the guerillas.

The epilogue, which was written some four years after the trip provides the author's views on the conflict. In short, it was the strength of the Afghan people more than any other factor that gave them victory. In addition to being a journalist, the author is also an award-winning photographer, but the section of photos was rather sparse and very poor. Overall, I think the book would have accomplished more if it had been published in 1987 while the conflict was still in progress. Since the Soviets pulled out in 1989, this book is anti-climatic.

The book is reasonably priced, easy to read, and very interesting, but for Armor officers, I think their time would be better spent on some other work. The book should be read by anyone doing in-depth research on the Afghan War, but for general content only.

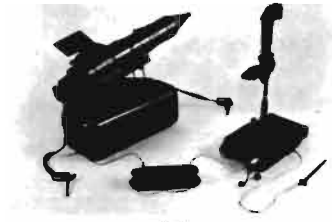
WILLIAM L. HOWARD  
LTC, Armor  
USAR, Retired  
Largo, Fla.



# IRAQI ATGMS



AT-3 ON BMP-1



AT-3



AT-3 ON BRDM 2



AT-4



AT-5 ON BRDM 2



AT-5



MILAN



MILAN ON LIGHT VEHICLE



MILAN ON LIGHT VEHICLE



HOT ON LIGHT VEHICLE



HOT ON BO-105

## CHARACTERISTICS

TYPE	AT-3 SAGGER WIRE GUIDED MILLOS	AT-4 SPAGOT WIRE GUIDED SACLOS W/LAUNCHER	AT-5 SPANDREL WIRE GUIDED SACLOS	HOT WIRE GUIDED SACLOS	MILAN WIRE GUIDED SACLOS
WEIGHT	11.3 Kg	40 Kg	12-18 Kg	6.48 Kg	6.85 Kg
LENGTH	890 MM	893 MM	1300 MM	1275 MM	789 MM
DIAMETER	120 MM	118 MM	130 MM	118 MM	118 MM
RANGE	900-3000 M	70-2000 M	4000 M	75-4000 M	25-2000 M
PENETRATION	400+ MM	500 MM	800 MM	HOT 1 - 800 MM HOT 2 - 800 MM	MILAN 1 - 800 MM MILAN 2 - 800 MM

This 24-by-27-inch poster of Iraqi guided missiles is the latest in a series on Threat tanks, armored vehicles, helicopters, and ATGMS to be produced by Threat Division, Directorate of Combat Developments, Fort Knox. Units may request copies by phoning DSN-464-AWTS or 502-624-AWTS.

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